

MANUFACTURERS' RECORD

A WEEKLY SOUTHERN INDUSTRIAL
RAILROAD & FINANCIAL NEWSPAPER.

THOUGHTS FOR THANKSGIVING.

The advance of two and a-half cents per pound in the price of cotton during the past nine weeks means a gain to the Southern planters of \$87,500,000 in the actual cash value of a single staple crop.

The increase in the sugar crop of this season will give to the South \$2,250,000 in bounty alone more than was received last year. The rice crop of this season is the largest ever grown in the South.

The 2,500,000 acres withdrawn from cotton this season have been planted with food crops, chiefly corn, thereby making the South more self-reliant and increasing the cash by keeping it at home instead of sending it West for food.

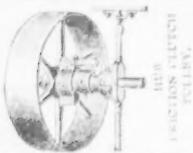
Bankers, merchants, manufacturers, farmers and the newspapers speak with one accord of the prosperity that not only awaits the South, but already is present. Confidence never was greater; business conditions never were more favorable.

THE FULL TABLE OF CONTENTS WILL BE FOUND ON PAGE 318.

\$4.00 per year;
Single Copy
10 Cents.

Vol. XXII.
No. 17.

Baltimore, November 25, 1892.



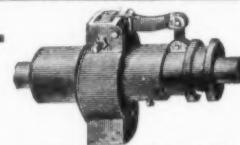
THE JAMES SMITH WOOLEN MACHINERY CO.

WOOLEN MACHINERY AND CARD CLOTHING OF EVERY DESCRIPTION,
SHAFTING, HANGERS, PULLEYS AND FRICTION CLUTCHES.

Hub Friction Clutch Pulleys will run 1,000 Revolutions.

411 to 421 Race Street

Made in sizes from 2 up to 1,000 horse-power.
More than ten thousand in use.



PHILADELPHIA, PA. FRICTION CUT-OFF COUPLING.

SPECIAL NOTICE.

BRANCH OFFICES
1140 London Victoria St., London, Eng.
1085 W. Washington St., Chicago, Ill.
203 St. James Street, Montreal, Can.
201-21 Congress St., Boston, Mass.
610 N. Fourth St., St. Louis, Mo.
26th Water St., Cleveland, Ohio.

Two handsome photo-engraved display sheets entitled
"RECENT IMPROVEMENTS IN AIR COMPRESSORS,"
"RECENT IMPROVEMENTS IN ROCK DRILLS,"
mailed free to any one who will cut out this advertisement and mail it to us with his name and
address.

THE INGERSOLL-SERGEANT DRILL CO., NO. 10 PARK PLACE, NEW YORK.

The BROWN HOISTING & CONVEYING MACHINE CO., CLEVELAND, OHIO, U. S. A.

MANUFACTURERS AND SOLE PROPRIETORS OF THE PATENTS, APPLICATIONS AND DESIGNS UNDER WHICH THE BROWN HOISTING AND CONVEYING APPARATUS AND VARIOUS TRAMWAYS FOR IT ARE BUILT.

NEW AND COMPLETE LABOR-SAVING SYSTEMS FOR HANDLING OF MATERIALS OF ALL KINDS. MACHINERY SPECIALLY ADAPTED FOR HANDLING PHOSPHATE.

The Brown Patent

Cable Tramway System.

Suspended Beam Tramway System

Bridge Tramway System.

Shed Tramway System

Warehouse Tramway System

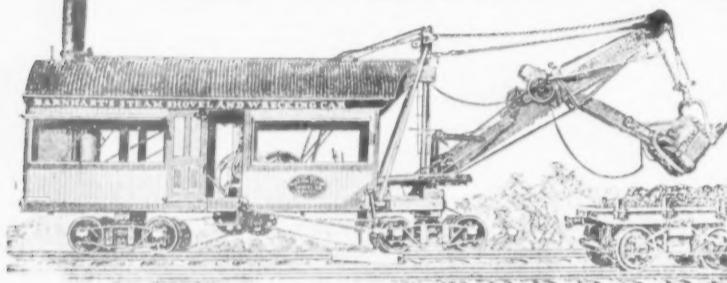
Sewer Machine Tramway System.

Continuous Elevated Tramway System.

THE FAYETTE-BROWN PATENT AUTOMATIC FURNACE HOIST.

THE MARION STEAM SHOVEL CO.

MANUFACTURERS OF

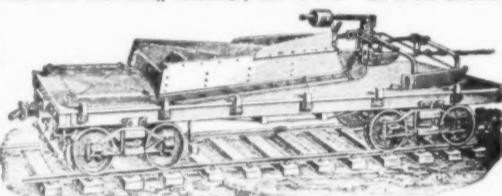


Barnhart's Steam Shovels, Dredges, Ditching Dredges, Railroad Ditchers, Wreckers, Ballast Unloaders, &c. Our Steam Shovels are largely used on Railroads and by Contractors, Brick Manufacturers, in excavating Iron Ore, Handling Stock Ore, Stripping Coal Fields and Stone Quarries, and are a most desirable machine for any use where excavating machinery can be used. All of our machines are guaranteed to give entire satisfaction; otherwise may be returned at our expense. For illustrated Catalogue, Photographs, and any further information desired, address

THE

Marion Steam Shovel Co.

601 WEST CENTRE ST.



Marion, Ohio. BARNHART'S BALLAST UNLOADER. No center rib or leader is required.

THE SOUTHERN SAW MFG. CO.

ATLANTA, GA.

Manufacturers of

Highest Grade Saws

Also Dealers in Saw Mill Specialties.

OUR INSERTED TOOTH SAWS have been thoroughly tested on all feeds and in all kinds of timber. Saw mill men concede it to be the strongest and easiest adjusted on the market. We guarantee price and quality.

Prompt Attention Given to All Kinds of Repair Work and Satisfaction Guaranteed.
Write for Catalogue and Prices.



The Delbert Engineering Co., Limited. New Orleans, La.

Save Steam. Avoid Condensation. Do away with Cracking and Drying of Woodwork in Factories or on board Steamers, Tugs, etc., by using the

MAGNESIA SECTIONAL PIPE AND BOILER COVERINGS.

IN USE IN NAVY AND PUBLIC BUILDINGS.

BARR STEAM PUMPING MACHINERY FOR WATER WORKS AND ALL PURPOSES.

STEAM BOILERS, CORLISS ENGINES, HEATERS AND INJECTORS.



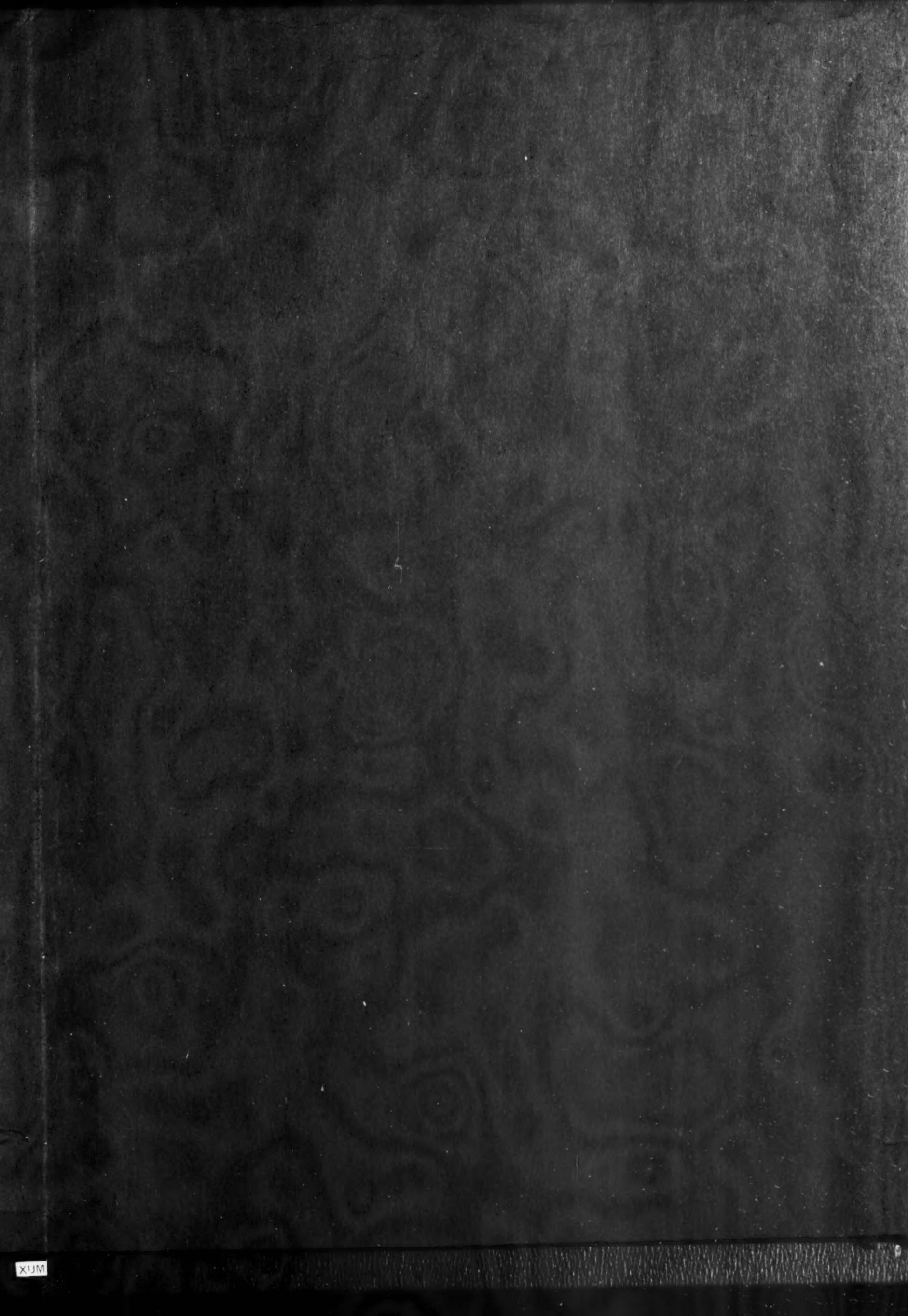
EASTERN OFFICE, No. 284 PEARL STREET, Cor. Beekman, NEW YORK.

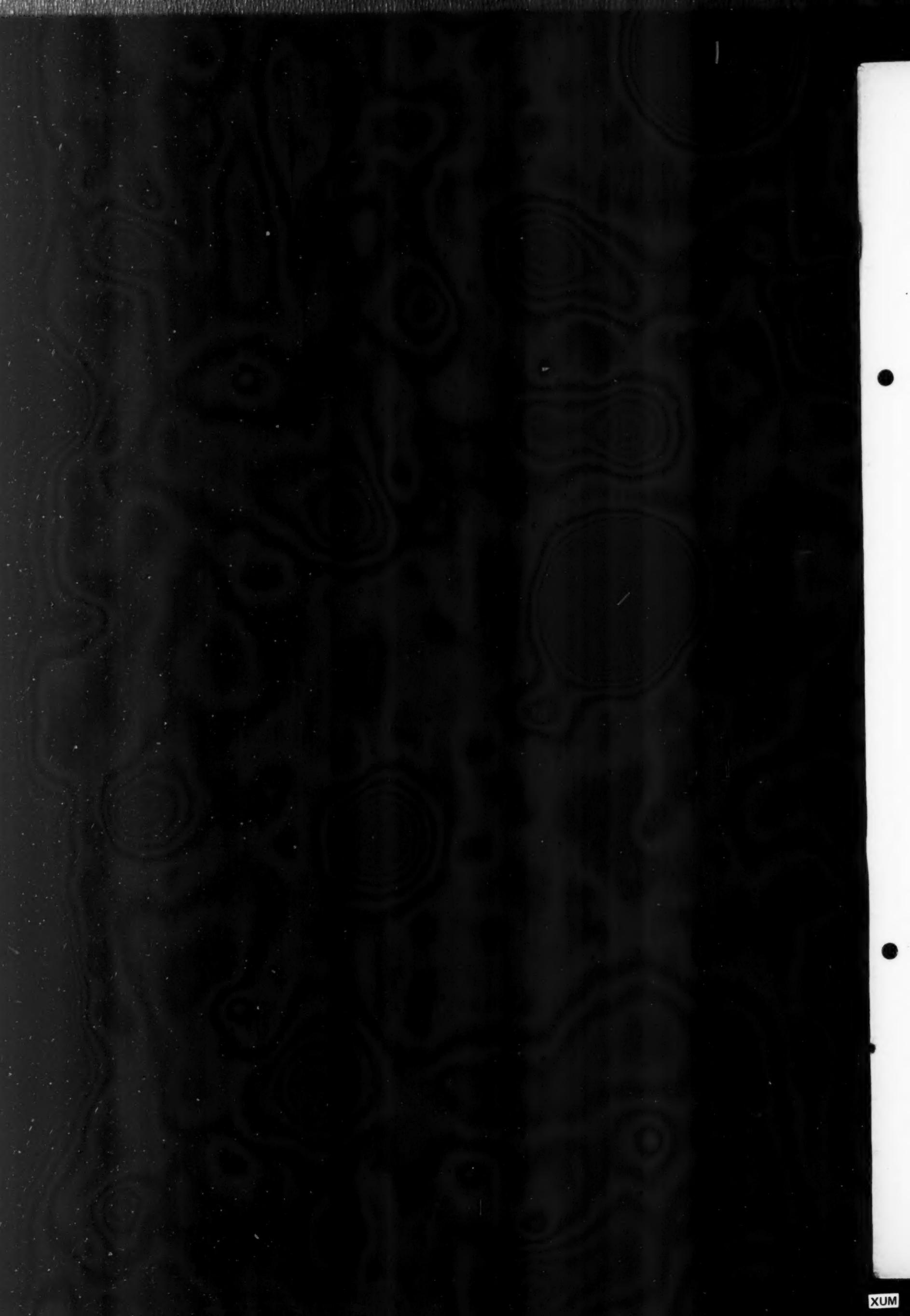
Clean Your Boiler Tubes with Abrams Expansion Flue Brush.

Write ST. LOUIS STEEL WIRE BRUSH CO.
ST. LOUIS, MO., for Circular.

THE MANUFACTURERS' RECORD

is the most thorough, complete and authentic source of information on Southern industrial affairs in existence. The subscription price is only \$4.00 a year. Some of our subscribers think every issue is worth that much. Try it for a year. Send in your subscription to-day. Don't wait until to-morrow: you may forget it.





CLASSIFIED INDEX OF ADVERTISERS.

FOR "ALPHABETICAL INDEX" SEE PAGE 46.

Acid Chambers.

Charleston Lead Co., Charleston, S. C.
Herman Poole, New York, N. Y.
Valk & Murdoch Iron Works, Charleston, S. C.

Air Compressors.

M. C. Bullock, Mfg. Co., Chicago, Ill.
Ingersoll-Sergeant Rock D. Co., New York, N. Y.
Morris Machine & Iron Co., Dover, N. J.
Rand Drill Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

Anti-Friction Metals. [See Phosphor-Bronze.]

Paul S. Reeves, Philadelphia, Pa.
Amer. Imp. Anti-Friction Metal Co., Mobile, Ala.

Architects.

Collins & Hackett, Staunton, Va.
Edward Barrath & Co., Chicago, Ill.
Teague & Mayre, Newport News, Va.
A. G. Bauer, Raleigh, N. C.
Gustaf Bottiger, Winston, N. C.
D. G. Zeigler, Charleston, S. C.
Charles H. Read, Richmond, Va.
Wilson & Huggins, Roanoke, Va.
Griswold & Nunan, Owensboro, Ky.
C. R. Makepeace & Co., Providence, R. I.
Lockwood, Greene & Co., Boston, Mass.
Drew, Baldwin & Co., New York, N. Y.

Architectural Iron Work.

Covington Machine Co., Covington, Va.
E. M. Hopkins, Savannah, Ga.
Toledo Wire & Iron Works, Toledo, O.
Toledo Cornice Works, Toledo, O.
Cushman Iron Co., Roanoke, Va.
Champion Iron Co., Kenton, O.
J. E. Bolles & Co., Detroit, Mich.
Fred. J. Meyers Mfg. Co., Covington, Ky.
T. H. Brooks & Co., Cleveland, O.
P. Duvinage & Co., Brooklyn, N. Y.

Artesian Well Tools and Supplies. [See Well Tools and Supplies.]

Babbitt Metal. [See Anti-Friction Metal.]

Bankers and Brokers.

F. B. S. Morgan, Cleveland, O.
N. W. Harris & Co., Chicago, Ill.
L. Breckinridge Cabell, New York, N. Y.
Godfrey & Train, New York, N. Y.
Hopkins, Dwight & Co., New York, N. Y.
Edward Morton & Co., New York, N. Y.
Exchange Banking & Trust Co., Charleston, S. C.
von Hemert & Co., Roanoke, Va.
John L. Williams & Son, Richmond, Va.
Middendorff, Oliver & Co., Baltimore, Md.

Barrel Machinery. [See Woodworking Machinery.]

Crescent Mfg. Co., Cleveland, O.
E. & B. Holmes, Buffalo, N. Y.

Bath Tubs.

Haines, Jones & Cadbury Co., Philadelphia, Pa.

Bearings.

N. American Metal Co., Long Island City, N. Y.

Belting.

N. Y. Belt & Pack. Co., Ltd., New York, N. Y.
E. M. Freese & Co., Galion, O.
Cameron & Barkley Co., Charleston, S. C.
Henry Popham & Son, East Newark, N. J.
Main Belting Co., Philadelphia, Pa.
Chesapeake Belting Co., Baltimore, Md.
Gandy Belting Co., Baltimore, Md.
Shultz Belting Co., St. Louis, Mo.
Smith-Courtney Co., Richmond, Va.
H. W. Caldwell & Son Co., Chicago, Ill.
American Supply Co., Providence, R. I.

Belting. (Chain.)

H. W. Caldwell & Son Co., Chicago, Ill.
F. H. C. Mey, Buffalo, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Engineer'g Co., Nicetown (Phila.), Pa.

Belt Lacing.

American Supply Co., Providence, R. I.
Henry Popham & Son, East Newark, N. J.
Shultz Belting Co., St. Louis, Mo.
Bristol's Mfg. Co., Waterbury, Conn.

Belts.

Adams & Woodson, Lynchburg, Va.
Monroe Mfg. Co., Lima, O.

Blowers and Exhaust Fans.

N. England Vent. & Heat. Co., Providence, R. I.
West & Branch, Richmond, Va.
Davidson Ventilating Fan Co., Boston, Mass.
Geo. P. Clark, Windsor Locks, Conn.
B. F. Sturtevant Co., Boston, Mass.

Boiler Appliances.

Sherwood Mfg. Co., Buffalo, N. Y.
Penberthy Injector Co., Detroit, Mich.
Jenkins Bros., New York, N. Y.

Boiler Compound.

Kehrhahn & Co., Baltimore, Md.
H. H. Mansfield, New York, N. Y.

Boiler Fronts and Flittings. [See Boilers.]

Vulcan Iron Works Co., Toledo, O.

Boilers. [See Machinery.]

Aultman & Taylor Machinery Co., Mansfield, O.
S. C. Forsyth Machine Co., Manchester, N. H.
Delbert Engineering Co., Ltd., New Orleans, La.

W. C. Leffel Co., Springfield, O.
John E. Beggs Mch. & Sup. Co., New York, N. Y.
Golley & Finley Iron Works, Lima, O.
Ravenna Boiler Works, Ravenna, O.
J. H. McEwen Mfg. Co., Ridgway, Pa.
Cameron & Barkley Co., Charleston, S. C.
Holyoke St. Boiler & Iron Wks., Holyoke, Mass.
Geo. M. Clapp, New York.

Cline Engine & Machine Co., Plymouth, O.
Harrisburg Fdy. & Mch. Works, Harrisburg, Pa.
American Well Works, Aurora, Ill.

Bass Foundry & Mch. Works, Ft. Wayne, Ind.
Geo. R. Lombard & Co., Augusta, Ga.
Geo. J. Fritz, St. Louis, Mo.

Chandler & Taylor Co., Indianapolis, Ind.
Enterprise Boiler Co., Youngstown, O.
West & Branch, Richmond, Va.

H. P. Edmond, Richmond, Va.
Struthers, Wells & Co., Warren, Pa.
Babcock & Wilcox Co., New York, N. Y.

H. Dudley Coleman Mch. Co., Ltd., New Orleans.
Greer Machinery Co., Knoxville, Tenn.
N. V. Safety Steam Power Co., New York, N. Y.

Buckeye Engine Co., Salem, O.
Stearns Mfg. Co., Erie, Pa.

Smith-Courtney Co., Richmond, Va.
Skinner Engine Co., Erie, Pa.

Talbott & Sons, Richmond, Va.
Jas. Leffel & Co., Springfield, O.

Cleveland & Hardwick, Erie, Pa.
Dan Shea & Co., Memphis, Tenn.

Oil Well Supply Co., Pittsburgh and New York.
Tudor Boiler Mfg. Co., Cincinnati, O.

Valk & Murdoch Iron Works, Charleston, S. C.
Frick Co., Waynesboro, Pa.

Sharon Boiler Works, Limited, Sharon, Pa.
Geo. W. Tiff, Sons & Co., Buffalo, N. Y.

Webster, Camp & Lane Machine Co., Akron, O.
S. D. Warfield Co., Baltimore, Md.

Valley Iron Works, Williamsport, Pa.

Bolts. (Expansion.)

Isaac Church, Toledo, O.

Bolts, Rivets and Nuts.

Milton Mfg. Co., Milton, Pa.
Pennsylvania Steel Co., Steelton, Pa.
Hoopes & Townsend, Philadelphia, Pa.

Brick.

Washington Hy. P. Brick Co., Washington, D. C.
Coaldale Brick & Tile Co., Birmingham, Ala.

Brick and Clayworking Machinery and Supplies.

Central Machine Works, Cleveland, O.
F. H. C. Mey, Buffalo, N. Y.

Kells & Sons, Adrian, Mich.

George Carnell, Philadelphia, Pa.

Walworth Run Fdy. & Mfg. Co., Cleveland, O.
C. & A. Potts & Co., Indianapolis, Ind.

Anderson Fdy. & Mch. Wks., Anderson, Ind.

H. Brewer & Co., Tecumseh, Mich.

E. M. Freese & Son, Galion, O.

J. W. Penfield & Son, Willoughby, O.

Frey-Scheckler Co., Bucyrus, O.

Chambers Bros. Co., Philadelphia, Pa.

Fletcher & Thomas, Indianapolis, Ind.

C. W. Raymond & Co., Dayton, O.

Bridges.

S. W. Frescoln, New York, N. Y.

American Bridge & Iron Co., Roanoke, Va.

Building Papers.

Ehret-Warren Mfg. Co., St. Louis, Mo.

Texas Coal Tar & Asphaltum Co., Dallas, Tex.

Business Opportunities.

J. S. Watters, Memphis, Tenn.

Richard R. Battee, Baltimore, Md.

R. T. Fouche, Ronie, Ga.

'Active,' care MANUFACTURERS' RECORD.

I. T. West, Frankfort, Ky.

Borden's Clay County Woodworking Co.,

Green Cove Springs, Fla.

W. R. Burgess, Sanford, Fla.

Mercantile Trust & Deposit Co., Baltimore, Md.

"Brickmaker," care MANUFACTURERS' RECORD

Samuel Kaye, Columbus, Miss.

Walburn-Swenson Co., Chicago, Ill.

R. H. Gatlin, Tarboro, N. C.

W. E. Bevill, Greensboro, N. C.

Irwin Tucker, Newport News, Va.

McClure & Maxwell, Knoxville, Tenn.

T. H. Sampson, New Orleans, La.

P. Duvinage & Co., Brooklyn, N. Y.

Planting Mill, care MANUFACTURERS' RECORD.

Canning Machinery.

Daniel G. Trench & Co., Chicago, Ill.

S. D. Warfield Co., Baltimore, Md.

Niagara Stamping & Tool Co., Buffalo, N. Y.

A. K. Robbins, Baltimore, Md.

Cans. (Fruit and Vegetable.)

Daniel G. Trench & Co., Chicago, Ill.

Card Clothing.

Smith, Saunders & Collins, Newton, N. C.

American Supply Co., Providence, R. I.

Brown & King Supply Co., Atlanta, Ga.

James Smith Woolen Mch. Co., Philadelphia, Pa.

Waters & Garland, Louisville, Ky.

Cotton Gin Machinery.

Dudley E. Jones Co., Little Rock, Ark.

Carver Cotton Gin Co., E. Bridgewater, Mass.

National Cotton Gin Co., Boston, Mass.

George R. Lombard & Co., Augusta, Ga.

Talbott & Sons, Richmond, Va.

Valk & Murdoch Iron Works, Charleston, S. C.

Cottonseed-oil Machinery.

Carver Cotton Gin Co., E. Bridgewater, Mass.

Boomer & Boschert Press Co., Syracuse, N. Y.

Cardwell Machine Co., Richmond, Va.

M. C. Cogswell, New York, N. Y.

George J. Fritz, St. Louis, Mo.

Talbott & Sons, Richmond, Va.

Corrugated Iron. [See Roofing and Siding.]**Cars. (Mine and Dump.)**

George Peacock, Selma, Ala.

Ryan-McDonald Mfg. Co., Baltimore, Md.

C. W. Raymond & Co., Dayton, O.

C. & A. Potts & Co., Indianapolis, Ind.

Cars. (Passenger and Freight.) [See Railroad Equipment and Supplies.]**Car Wheels.**

A. Whitney & Sons, Philadelphia, Pa.

Covington Machine Co., Covington, Va.

Castings. (Brass and Bronze.)

Covington Machine Co., Covington, Va.

Crown Smelting Co., Chester, Pa.

Phosphor-Bronze Smelt. Co., Ltd., Philadelphia.

Paul S. Reeves, Philadelphia, Pa.

Castings. (Iron.)

Covington Machine Co., Covington, Va.

Glamorgan Co., Lynchburg, Va.

Chattanooga Fdy. & P. Wks., Chattanooga, Tenn.

Howard-Harrison Iron Co., Bessemer, Ala.

Vulcan Iron Works Co., Toledo, O.

Todd Pulley & Shafting Works, E. St. Louis, Ill.

Struthers, Wells & Co., Warren, Pa.

Manly Machine Co., Dalton, Ga.

Walker Mfg. Co., Cleveland, O.

McLanahan & Stone, Hollidaysburg, Pa.

Castings. (Malleable Iron and Steel.)

Balto. Mal. Iron & Steel Cast. Co., Balto., Md.

Chester Steel Castings Co., Chester, Pa.

Ceiling. (Metal.) [See Roofing.]

Kinnear & Gager Co., Columbus, O.

Cement.

Howard Hy. Cement Co., Chattanooga, Tenn.

Chemicals.

Standard Guano & Chemical Mfg. Co., New Orleans, La.

Chemists.

Iron Masters' Laboratory, Warrenton, Va.

John M. McCandless, Atlanta, Ga.

John Sanderson, Middletown, Ky.

Frederic P. Dewey, Washington, D. C.

Walter M. Stein, Philadelphia, Pa.

Philadelphia Metallurgical Wks., Philadelphia.

Ledoux Chemical Laboratory, New York.

Dr. Henry Froehling, Richmond, Va.

Herman Poole, New York, N. Y.

Clocks. (Watchman's.)

C. D. Bernsee, New York, N. Y.

Clutches. (Friction.)

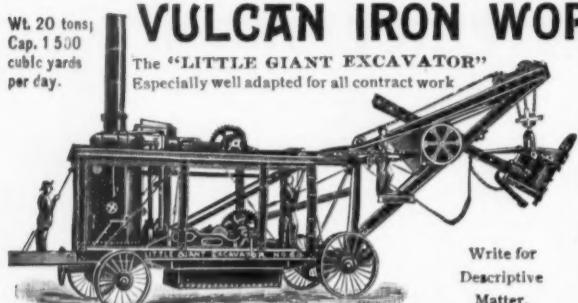
J. H. & D. Lake, Hornellsville, N. Y.

Weller Mfg. Co., Chicago, Ill.

Wt. 20 tons;
Cap. 1,500
cubic yards
per day.

VULCAN IRON WORKS CO.

The "LITTLE GIANT EXCAVATOR"
Especially well adapted for all contract work.



Write for
Descriptive
Matter.

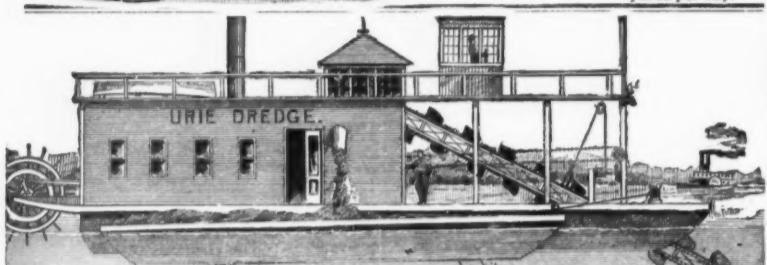
Toledo, O. U. S. A.

Manufacturers of
Dredges and
Excavators.

Boiler Fronts and
Railroad Castings.

Our "GIANT"
EXCAVATOR,

Weight 40 tons, ca-
pacity 2,000 cubic
yards per day.



Dredges
For Phosphate,
Gravel, Canals,
Levees,
Harbors.

URIE DREDGE MFG. CO.
Station "A," Kansas City, Mo.

CROWN SMELTING COMPANY,
CHESTER, PA.

CROWN BRONZE AND BRASS FOUNDRY.

Heavy Castings, Propeller Wheels and Marine Work SPECIALTY.
MANUFACTURERS OF PHOSPHOR BRONZE.

LAUNDRY "A. M. DOLPH" MACHINERY.

HOTEL and INSTITUTION WORK CAREFULLY HANDLED.
ESTABLISHED 1861. OAKLEY & KEATING, 40 Cortlandt St., New York.
Send for Catalogue.

Southern Representatives Brewster Hardware Co., Raleigh, N. C.

Laundry Machinery.

LARGEST STOCK.

LATEST IMPROVEMENTS.

FULLEST LINE.

Washing Machines,
Ironing Machines,
Centrifugal Machines,
Mangles, Wringers, &c.
BOILERS AND ENGINES.

OUTFITS FOR

Hotels and Public Institutions.

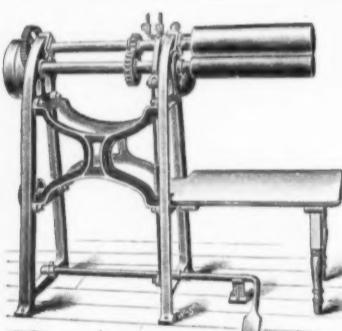
SPECIALTY.

THE A. M. DOLPH CO.

16 South Clinton Street,
CHICAGO, ILL.

40 Cortlandt Street,
NEW YORK.

No. 166 to 180 W. Pearl Street,
CINCINNATI, O.



Laundry Machinery

COMPLETE

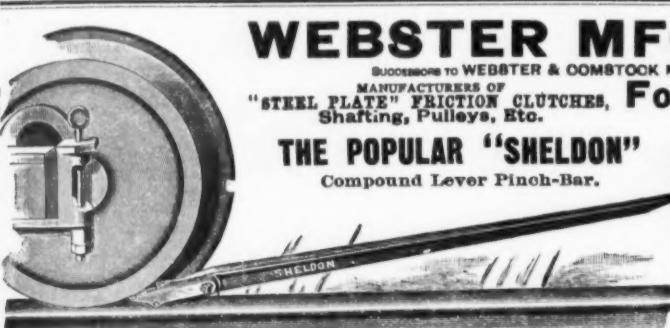
LAUNDRY OUTFITS,

Ranging in Price from \$750 Upwards.

SEND FOR CATALOGUE AND PRICE LIST.

GEO. J. FRITZ,
2008 to 2028 South Third Street,
ST. LOUIS, MO.

GEO. J. FRITZ'S PATENT SHIRT BODY IRONER.



WEBSTER MFG. CO.,

BUSINESS TO WEBSTER & COMSTOCK MFG. CO.

MANUFACTURERS OF
"STEEL PLATE" FRICTION CLUTCHES, FOUNDERS & GENERAL MACHINISTS,

Shafting, Pulleys, Etc.

THE POPULAR "SHELDON"

Compound Lever Pinch-Bar.



"HERCULES" Steel Scoop.

Office and Salesroom, 195 S. CANAL STREET,
Works, 1075-1096 W. FIFTEENTH STREET, **Chicago, Ill.**

DEALERS IN COTTON, RUBBER and LEATHER

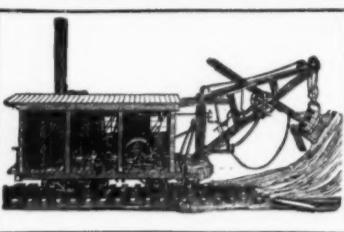
Coker-Metcalf Power Grain Shovel, **BELTING.**



PATENTED APRIL 2, 1895

SPIRAL STEEL CONVEYOR.

DREDGES & SHOVELS



STEAM DREDGES,

For Drainage and Irrigation,
Filling Land, Levee Work,
Harbor Work, Etc.

STEAM SHOVELS,

For Railroads, Contract Work,
Stripping Coal and Ore,
Brickyards, Highways, Etc.

Bucyrus Steam Shovel & Dredge Co.

BUCYRUS, OHIO.

LIDGERWOOD MFG. CO.

MANUFACTURERS OF IMPROVED

HOISTING ENGINES

Specially adapted for Railroad and Contractors' uses,
Pile Driving, Bridge and Dock Building, Excavating, etc.
300 Styles and Sizes and over 8,500 in use.

96 Liberty Street, New York.

99 First Avenue, Pittsburgh, Pa.

15 N. 7th Street, Philadelphia, Pa.

34 and 36 W. Monroe Street, Chicago.

197 to 203 Congress Street, Boston.

5-7 North First Street, Portland, Ore.

610 North Fourth Street, St. Louis.

HALF AGENTS—FRASER & CHALMERS, Salt Lake City, Utah, and

Hele & Montana; HENDRICK & BOLHOFF MFG. CO., Denver, Colorado.

HOISTING ENGINES

QUARRYING AND CONTRACTING MACHINERY.

AMERICAN HOIST & DERRICK CO., St. Paul, Minn. Chicago, 48 S. Canal St.



SOLE MANUFACTURERS of FRED. G. WEIR'S
IMPROVED RIGID & SPRING FROGS, CROSSINGS,
SINGLE, THREE THROW, SPLIT SWITCHES,
FIXED & AUTOMATIC SWITCH STANDS, STEEL
DIE FORMED RAIL BRACES, SWITCH FIXTURES, ETC.



IT BEATS THE CARS

How Business Keeps Up!

And a hard winter before us at that. Let the good work
go on. We can stand it.

Rapid Roller Copiers,

Shannon Files,

Legal Blank Cabinets,

And other Sundries are still in it. Yours for satisfaction,

OFFICE SPECIALTY MFG. CO.

ATLANTA, GA.

CLASSIFIED INDEX OF ADVERTISERS.

FOR "ALPHABETICAL INDEX" SEE PAGE 46.

G. T. Woods Mfg. Co., New York, N. Y.
Jordan & MacLeod, Washington, D. C.
S. D. Warfield Co., Baltimore, Md.
General Electric Co., New York, N. Y.
Rockford Electric Co., Rockford, Ill.
Smith, Saunders & Collins, Newton, N. C.
Heisler Electric Co., Philadelphia, Pa.

Elevators.
Graves Elevator Co., Rochester, N. Y.
Otis Bros. & Co., New York, N. Y.
Howard Fdy. & Mch. Works, Philadelphia, Pa.
Enterprise Safety Elev. Co., Chattanooga, Tenn.
Jas. H. Curran, Cincinnati, O.
James Bates, Baltimore, Md.
Morse, Williams & Co., Philadelphia, Pa.

Elevator Devices.
Safety Elevator Brake Co., Chicago, Ill.

Emery Wheels. [See *Polishing and Grinding Machinery*]

Engineers. (Consulting and Contracting.)
Julian Kennedy, Pittsburgh, Pa.
De Lew & Bailey, Baltimore, Md.
A. Leofred, Montreal, Canada.
W. B. Smith Whaley, Columbia, S. C.
Collins & Hackett, Staunton, Va.
J. D. & Wm. G. Moler, Charleston, W. Va.
Edward Barratt & Co., Chicago, Ill.
John N. Adams, Richmond, Va.
F. J. Amweg, Philadelphia, Pa.
Calhoun & Co., Chicago, Ill.
John C. Chase, Wilmington, N. C.
George N. Comly, Wilmington, Del.
T. Waln-Morgan Draper, New York, N. Y.
S. W. Frescoln, New York, N. Y.
Griswold & Nunan, Owensboro, Ky.
W. H. Gibbs, Jr., & Co., Columbia, S. C.
R. F. Hartford, Atlanta, Ga.
Julian Kennedy, Pittsburgh, Pa.
Olin H. Landreth, Nashville, Tenn.
H. Ward Leonard & Co., New York, N. Y.
C. Ad. Mezger, Charlotte, N. C.
Albert D. Pentz, Elizabeth, N. J.
Herman Poole, New York, N. Y.
Josiah Pierce, Jr., Baltimore, Md.
Walter M. Stein, Philadelphia, Pa.
von Schon & Garner, Fredericksburg, Va.
Arthur L. Stevens, Philadelphia, Pa.
Ed. N. K. Talcott, New York, N. Y.

Engines. [See *Machinery*]
Beckett Foundry & Mch. Co., Arlington, N. J.
William Tod & Co., Youngstown, O.
Remington Machine Co., Wilmington, Del.
H. Dudley Coleman Machine Co., Ltd., New Orleans, La.
Geo. R. Lombard & Co., Augusta, Ga.
Morris Mch. & Iron Co., Dover, N. J.
Oil Well Supply Co., Pittsburgh and New York.
Weisel & Vilter Mfg. Co., Milwaukee, Wis.
Ajax Iron Works, Corry, Pa.
Edward P. Allis Co., Milwaukee, Wis.
American Engine Co., Bound Brook, N. J.
American Well Works, Aurora, Ill.
Bass Foundry & Mch. Works, Ft. Wayne, Ind.
John E. Beggs Mch. & Sup. Co., New York, N. Y.
Buckeye Engine Co., Salem, O.
Cameron & Barkley Co., Charleston, S. C.
Chandler & Taylor Co., Indianapolis, Ind.
George M. Clapp, New York, N. Y.
Cleveland & Hardwick, Erie, Pa.
Cline Engine & Machine Co., Plymouth, O.
Delbert Engineer'g Co., Ltd., New Orleans, La.
H. P. Edmond, Richmond, Va.
S. C. Forsaith Machine Co., Manchester, N. H.
Frick Co., Waynesboro, Pa.
George J. Fritz, St. Louis, Mo.
Globe Machine Works, Cincinnati, O.
Greer Machinery Co., Knoxville, Tenn.
Harrisburg Fdy. & Mch. Wks., Harrisburg, Pa.
Houston, Stanwood & Gamble, Cincinnati, O.
James Leffel & Co., Springfield, O.
W. C. Leffel Co., Springfield, O.
J. H. McEwen Mfg. Co., Ridgway, Pa.
N. Y. Safety Steam Power Co., New York, N. Y.
Pennsylvania Mch. Co., Ltd., Philadelphia, Pa.
Philadelphia Eng. Wks., Ltd., Philadelphia, Pa.
Skinner Engine Co., Erie, Pa.
Smith-Courtney Co., Richmond, Va.
Stearns Mfg. Co., Erie, Pa.
Struthers, Wells & Co., Warren, Pa.
Talbott & Sons, Richmond, Va.
Geo. W. Tift, Sons & Co., Buffalo, N. Y.
Valk & Murdoch Iron Works, Charleston, S. C.
Valley Iron Works, Williamsport, Pa.
E. Walker Tool Co., Erie, Pa.
S. D. Warfield Co., Baltimore, Md.
Webster, Camp & Lane Machine Co., Akron, O.
Wheland's Fdy. & Mch. Wks., Chattanooga, Tenn.

Engines. (Gas.)
Shipman Engine Co., Boston, Mass.
H. P. Edmond, Richmond, Va.
Otto Gas Engine Works, Philadelphia, Pa.
Clark Sintz, Springfield, O.
Van Duzen Gas & Gaso. Eng. Co., Cincinnati, O.

Engines. (Oil.)
Shipman Engine Co., Boston, Mass.
Rochester Mch. Tool Works, Rochester, N. Y.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.

Engravers.
Baltimore Engraving Co., Baltimore, Md.
A. Hoen & Co., Richmond, Va.
Photo Electro Engraving Co., New York, N. Y.

Feed Water Heaters.
Edward P. Allis Co., Milwaukee, Wis.
James Berryman, Philadelphia, Pa.
Delbert Engineer'g Co., Ltd., New Orleans, La.
Stilwell & Bierce Mfg. Co., Dayton, O.

Fencing.
Hartman Mfg. Co., Beaver Falls, Pa.
H. Balderston & Son, Baltimore, Md.
Champion Iron Co., Kenton, O.
Cushman Iron Co., Roanoke, Va.
Dufur & Co., Baltimore, Md.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Fred. J. Meyers Mfg. Co., Covington, Ky.
Toledo Wire & Iron Works, Toledo, O.

Fertilizer Machinery.
Cameron & Barkley Co., Charleston, S. C.
Charleston Lead Co., Charleston, S. C.
C. H. Dempwolf & Co., York, Pa.
W. D. Dunning, Syracuse, N. Y.
Valk & Murdoch Iron Works, Charleston, S. C.
Walker & Elliott, Wilmington, Del.

Files.
Nicholson File Co., Providence, R. I.

Filters.
Gravity Purifier Co., Decatur, Ind.

Fire Brick.
Union Mining Co., Mt. Savage, Md.
Ashland Fire Brick Co., Ashland, Ky.
Henry Stevens' Sons, Macon, Ga.
Louisville Fire Brick Works, Louisville, Ky.
Southern Fire Brick Works, Richmond, Va.

Flour and Grist Mill Machinery and Supplies.
J. B. Allfree Mfg. Co., Indianapolis, Ind.
H. W. Caldwell & Son Co., Chicago, Ill.
J. H. Day & Co., Cincinnati, O.
Nordyke & Marmon Co., Indianapolis, Ind.
Sprout, Waldron & Co., Muncy, Pa.
Stilwell & Bierce Mfg. Co., Dayton, O.
Talbott & Sons, Richmond, Va.
Thompson & Campbell, Philadelphia, Pa.
Weller Mfg. Co., Chicago, Ill.

Flue Cleaners.
Oliver P. Clay Co., Cleveland, O.
St. Louis Steel Wire Brush Co., St. Louis, Mo.
Sherwood Mfg. Co., Buffalo, N. Y.

Forges.
Bradley & Co., Syracuse, N. Y.
Foos Mfg. Co., Springfield, O.
B. F. Sturtevant Co., Boston, Mass.

Fuel Gas Producers.
T. H. Brooks & Co., Cleveland, O.
Julian Kennedy, Pittsburgh, Pa.

Furnace Builders.
Covington Machine Co., Covington, Va.
Walter M. Stein, Philadelphia, Pa.
American Bridge & Iron Co., Roanoke, Va.
Philadelphia Eng. Wks., Ltd., Philadelphia, Pa.
Julian Kennedy, Pittsburgh, Pa.
S. W. Frescoln, New York, N. Y.

Furniture. (Office.)
J. M. Sauder & Co., Roanoke, Va.
Office Specialty Mfg. Co., Atlanta, Ga.
Derby & Kilmer Desk Co., Boston, Mass.

Gas Machines.
N. Y. Domestic Gas Mch. Co., New York, N. Y.

Glass. (Stained.)
Henry Seim & Co., Baltimore, Md.
Ernest V. Richards, Wilmington, N. C.
W. A. Heffner, Lynchburg, Va.

Gold Extractors.
Mechanical Gold Extractor Co., New York, N. Y.

Grates and Grate Bars.
Kelley Bros., Goshen, Ind.
New York Central Iron Wks. Co., Geneva, N. Y.
Walworth Run Foundry & Mfg. Co., Cleveland, O.

Grain Elevator Supplies.
Weller Mfg. Co., Chicago, Ill.
H. W. Caldwell & Son Co., Chicago, Ill.
W. J. Clark & Co., Salem, O.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Engineer'g Co., Nicetown (Phila.), Pa.
Webster Mfg. Co., Chicago, Ill.

Grinding and Polishing Machinery.
N. V. Belt & Pack. Co., Ltd., New York, N. Y.
Grant Corun, Wheel Mfg. Co., Chester, Mass.
Southern Emery Wheel Co., Tallapoosa, Ga.
Michigan Emery Wheel Co., Detroit, Mich.
Waltham Emery Wheel Co., Waltham, Mass.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester, Mass.

Hammers. (Steam and Power.)
Bradley & Co., Syracuse, N. Y.
Hackney Hammer Co., Cleveland, O.
David Bell, Buffalo, N. Y.
Belden Machine Co., New Haven, Conn.
Bement, Miles & Co., Philadelphia, Pa.
Long & Allstatter Co., Hamilton, O.

Handle Machinery. [See *Woodworking Machinery*]
Mitts & Merrill, East Saginaw, Mich.
Ober Lathe Co., Chagrin Falls, O.
Egan Co., Cincinnati, O.
S. C. Forsaith Machine Co., Manchester, N. H.
Trevor Mfg. Co., Lockport, N. Y.

Hardware Specialties.
Berger Bros., Philadelphia, Pa.
L. S. Starrett, Athol, Mass.
H. A. Williams Mfg. Co., Boston, Mass.
J. H. Day & Co., Cincinnati, O.
C. F. Richardson, Athol, Mass.
Belden Machine Co., New Haven, Conn.
Van Wagoner & Williams Co., New York, N. Y.
Cronk Hanger Co., Elmira, N. Y.
Covert Mfg. Co., West Troy, N. Y.

Hay Tools.
Silver Mfg. Co., Salem, O.
U. S. Wind Eng. & Pump Co., Batavia, Ill.

Heating Apparatus.
Warren Webster & Co., Philadelphia, Pa.
New England Vent. & Heat. Co., Providence, R. I.
West & Branch, Richmond, Va.
T. H. Brooks & Co., Cleveland, O.
B. F. Sturtevant Co., Boston, Mass.

Hoisting Machinery.
Covington Machine Co., Covington, Va.
Beckett Foundry & Mch. Co., Arlington, N. J.
American Hoist & Derrick Co., St. Paul, Minn.
Lincoln Iron Works, Rutland, Vt.
Morris Machine & Iron Co., Dover, N. J.
James H. Lancaster, New York, N. Y.
Cline Engine & Machine Co., Plymouth, O.
Brown Hoist & Conv. Mch. Co., Cleveland, O.
Lidgerwood Mfg. Co., New York, N. Y.
Union Fdy. & Mch. Works, Rockaway, N. J.
John F. Byers Machine Co., Ravenna, O.
M. C. Bullock Mfg. Co., Chicago, Ill.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Sullivan Machinery Co., Chicago, Ill.
Copeland & Bacon, New York, N. Y.
Vulcan Iron Works Co., Toledo, O.
Ryan-McDonald Mfg. Co., Baltimore, Md.
Webster, Camp & Lane Machine Co., Akron, O.
Chain Hoist.
Maris & Beekley, Philadelphia, Pa.
E. Harrington, Son & Co., Philadelphia, Pa.

Hoop Machinery.
Frontier Iron Works, Detroit, Mich.

Hose.
N. Y. Belt & Pack. Co., Ltd., New York, N. Y.
John C. N. Guibert, New York, N. Y.

Hose Racks.
John C. N. Guibert, New York, N. Y.

Hydrants.
Ludlow Valve Mfg. Co., Troy, N. Y.

Ice-Making Machinery.
Remington Machine Co., Wilmington, Del.
Weisel & Vilter Mfg. Co., Milwaukee, Wis.
Burns Mfg. Co., Atlanta, Ga.
E. C. Hillyer & Co., Newport News, Va.
Arthur L. Stevens, Philadelphia, Pa.
Van Winkle Gin & Machinery Co., Atlanta, Ga.
Fred. W. Wolf Co., Chicago, Ill.
Frick Co., Waynesboro, Pa.

Injectors.
Delbert Engineer'g Co., Ltd., New Orleans, La.
Garfield Injector Co., Wadsworth, O.
Sherwood Mfg. Co., Buffalo, N. Y.
Penberthy Injector Co., Detroit, Mich.
Jenkins Bros., New York, N. Y.

Insurance.
Employers' Liability Assurance Corporation, Limited, Boston, Mass.
Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.

Iron and Steel.
Harris & Thornton, Chattanooga, Tenn.
B. M. Jones & Co., Boston, Mass.

Iron Buildings and Roofs.
Covington Machine Co., Covington, Va.
American Bridge & Iron Co., Roanoke, Va.
S. W. Frescoln, New York, N. Y.

Ironworking Machinery.
E. M. Hopkins, Savannah, Ga.
Sebastian Lathe Co., Cincinnati, O.
H. Bickford, Lakewood, N. H.
Draper Machine Tool Co., Worcester, Mass.
Ingersoll Milling Machine Co., Rockford, Ill.
Toledo Machine & Tool Co., Toledo, O.
Bement, Miles & Co., Philadelphia, Pa.
Sebastian-May Co., Sidney, O.
Stow Mfg. Co., Binghamton, N. Y.
Smith-Courtney Co., Richmond, Va.
Pennsylvania Mch. Co., Ltd., Philadelphia, Pa.
Stow Flexible Shaft Co., Ltd., Philadelphia, Pa.
E. Harrington, Son & Co., Philadelphia, Pa.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Niagara Stamping & Tool Co., Buffalo, N. Y.

Knitting Machinery.
Nye & Tredick, Philadelphia, Pa.

Laundry Machinery.
Oakley & Keating, New York, N. Y.
Geo. J. Fritz, St. Louis, Mo.
The A. M. Dolph Co., Cincinnati, O.

Lights. (Factory and Outdoor.)
Keegan & Halpin, New York, N. Y.
T. H. Brooks & Co., Cleveland, O.

Locomotive Builders. [See *Railroad Equipment and Supplies*]
Richmond Loco. & Mch. Wks., Richmond, Va.
H. K. Porter & Co., Pittsburg, Pa.
Baldwin Locomotive Works, Philadelphia, Pa.

Lumber. [See *Directory of Southern Lumber Dealers*]
Hundley Bros. & Co., Oxford, N. C.
Harris & Thornton, Chattanooga, Tenn.
E. D. Alliro Co., Cincinnati, O.
T. J. Shryock & Co., Baltimore, Md.

Machinery.
Thomas F. Bishop & Co., Cincinnati, O.
Central Machine Works, Cleveland, O.
De Lew & Bailey, Baltimore, Md.
Cameron & Barkley Co., Charleston, S. C.
W. J. Williams, Dallas, Texas.
H. H. Mansfield, New York, N. Y.
S. D. Warfield Co., Baltimore, Md.
William Tod & Co., Youngstown, O.
Brown & King Supply Co., Atlanta, Ga.
Southern Equipment Co., Chattanooga, Tenn.
Cushman Iron Co., Roanoke, Va.
Chester Bertolette & Co., Norristown, Pa.
Pennsylvania Mch. Co., Ltd., Philadelphia, Pa.
S. C. Forsaith Machine Co., Manchester, N. H.
John N. Adams, Richmond, Va.

Machinery and Tools. (Second-hand.)
Thomas F. Bishop & Co., Cincinnati, O.
Southern Cotton Oil Co., Philadelphia, Pa.
Machine Shop, care MANUFACTURERS' RECORD.
H. H. Mansfield, New York, N. Y.
Geo. Place Machinery Co., New York, N. Y.
F. H. Potter, Providence, R. I.
Frank Toomey, Philadelphia, Pa.
Chester Bertolette & Co., Norristown, Pa.
Geo. M. Clapp, New York, N. Y.
New York Machinery Depot, New York, N. Y.
Prentiss Tool & Supply Co., New York, N. Y.

Mill Engineers.
John C. Knight, Boston, Mass.
Lockwood, Greene & Co., Boston, Mass.
C. R. Makepeace & Co., Providence, R. I.
Drew, Baldwin & Co., New York, N. Y.

Mill Supplies.
W. J. Williams, Dallas, Texas.
W. H. Gibbs, Jr., & Co., Columbia, S. C.
Brown & King Supply Co., Atlanta, Ga.
Southern Saw Mfg. Co., Atlanta, Ga.
H. Dudley Coleman Mch. Co., Ltd., New Orleans.
Queen City Supply Co., Cincinnati, O.
Talbott & Sons, Richmond, Va.
E. C. Hillyer, Louisville, Ky.
James Smith Woolen Mch. Co., Philadelphia, Pa.
Delbert Engineer'g Co., Ltd., New Orleans, La.
Smith-Courtney Co., Richmond, Va.
Cameron & Barkley Co., Charleston, S. C.
Greer Machinery Co., Knoxville, Tenn.
American Supply Co., Providence, R. I.
E. C. Atkins & Co., Indianapolis, Ind.

Mineral Wool.
Roanoke Mineral Wool Co., Roanoke, Va.
U. S. Mineral Wool Co., New York, N. Y.

Miscellaneous.
J. E. Lockwood, Kansas City, Mo.
Frederick H. Smith, Baltimore, Md.
Corresp'ce School of Mechanics, Scranton, Pa.
Ridgfield Furnace & Refining Co., Newport, Ky.
Miller Safe & Iron Works, Baltimore, Md.
Wm. Horner, Reed City, Mich.
Ault & Viborg Co., Cincinnati, O.
Ernest Coates, New York, N. Y.
Jory & Co., Baltimore, Md.
Ed. N. Kirk Talcott, New York, N. Y.
C. J. Haden, Atlanta, Ga.
Southern Information Bureau, Boston, Mass.
F. S. Mordaunt Co., Chicago, Ill.
Plaza Hotel, New York, N. Y.
Chas. M. Stieff, Baltimore, Md.
Luray Artistic Wood Co., Luray, Va.
Alex. D. Cunny, Cincinnati, O.
Fulton Colville, Atlanta, Ga.
Adams & Woodson, Lynchburg, Va.
Sanders & Stayman, Baltimore, Md.
Corporation Book Co., Philadelphia, Pa.
C. A. Gambrill Mfg. Co., Baltimore, Md.
The Bradstreet Co., Baltimore, Md.
Record Printing House, Baltimore, Md.
Salem Battery Co., Salem, Va.

Oils.
Lubroleine Oil Co., Baltimore, Md.
Kingan & Co., Richmond, Va.
Wm. C. Robinson & Son, Baltimore, Md.

ARCHITECTS, CIVIL ENGINEERS, MINING ENGINEERS, CHEMISTS, Etc.

THOMAS G. SMITH, JR.,
CONSULTING AND CONTRACTING ENGINEER,
"STEAM PLANTS."
No. 11 HAMMOND BUILDING,
CINCINNATI, OHIO.

LOCATION WANTED

For a Large MACHINERY PLANT,

with capital invested of \$250,000 and employing 100 hands, mostly skilled labor. Will enlarge and employ 200 to 300 hands in new location. Have been in successful operation for thirty years. Want site and additional capital. Business mostly export trade. Address

ED. N. KIRK TALCOTT,
CIVIL AND MECHANICAL ENGINEER,
57 BROADWAY, NEW YORK.

THE IRON-MASTERS' LABORATORY.

Established in 1866 in the Interest of Iron-Masters.

Exclusively for the Analysis of Iron Ores, Pig and Wrought Irons, Steels, Limestones, Clays, Coals and Slags for Metallurgical Purposes.

Branch Office, No. 339 Walnut Street, Philadelphia.

LABORATORY AT WARRENTON, VIRGINIA. J. BLODGET BRITTON.

C. R. MAKEPEACE & CO
Architects and Mill Engineers
PROVIDENCE, R. I. Plans, Specifications and Estimates furnished for Cotton & Woolen Mills.

LOCKWOOD, GREENE & CO.
Mill Architects and Engineers,
131 Devonshire Street,
BOSTON, MASS.

SPECIALTY:
Plans, Specifications and Superintendence for the Construction, Equipment and Organization of Cotton, Woolen, Worsted and other Textile Mills

DREW, BALDWIN & CO.
MILL ARCHITECTS & ENGINEERS
45 Broadway, New York.

Plans for Best Modern Mill Construction. Arrangement of Power, Machinery, Shafting, Rope Transmission, etc. Textile Mills a Specialty.

CUSTAF BOTTIGER. Architect,
WINSTON, N. C.
Plans, Specifications, Estimates and Superintendence. Heavy Buildings a Specialty.

Charles H. Read, Jr.
ARCHITECT,
No. 12 N. Ninth Street, RICHMOND, VA.

WILSON & HUGGINS,
ARCHITECTS.
Correspondence Solicited.
ROANOKE, VA.

A. G. BAUER,
Architect and Superintendent,
RALEIGH, N. C.

GRISWOLD & NUNAN,
Architects and Engineers,
Plans, Specifications, Superintendence and Guaranteed Estimates.
Surveys and Estimates of Roads, Railroads, Bridges and Mines. Correspondence solicited.
OWENSBORO, KY.

D. G. ZEIGLER,
ARCHITECT,
CHARLESTON, S. C.
Plans and Specifications furnished for all classes of Buildings. Correspondence cheerfully replied to. Remodeling of existing structures a specialty.

TEAGUE & MARYE,

ARCHITECTS.

Virginian Building, Norfolk, Va., Washington Ave. & 27th St., Newport News, Va.

Correspondence Invited.

T. JASPER COLLINS. W. M. T. HACKETT.
COLLINS & HACKETT,
Architects and Mechanical Engineers,
ROOMS 27 and 28 CROWLE BUILDING,
STAUNTON, VIRGINIA.
Drawings, Specifications and Superintendence
Furnish for all kinds of Buildings, Ma-
chinery, &c., at Reasonable Rates.

EDW. BARRATH & CO.
Draughting and Engineering Office,
Architects & Mechanical Engineers,
MONADNOCK BLOCK, ROOM 1404.
Cor. Jackson & Dearborn Streets, Chicago, Ill.
Packing Houses a Specialty. Special Machinery
designed. All kind of Iron and Steel Structures,
Bridges, Trusses, Roofs, etc. Blue printing and
drafting in general.

ADAMS & WOODSON
MANUFACTURERS
SASH, DOORS, BLINDS, PINE AND
HARDWOOD FINISH FOR BUILD-
ING. SHIPMENTS MADE TO ALL POINTS
+ WRITE FOR PRICES. LYNCHBURG, VA.

CALHOUN & CO.
Civil Engineers,
Contractors for the Construction of
Railroads and Public Works.
119, 121 LaSalle Street, CHICAGO, ILL.

VON SCHON & GARNER,
Civil Engineers,
FREDERICKSBURG, VA.

Property, Topographical, Townsite, RAILROAD
and MINING SURVEYS. Reports on Mineral and
Timber Property. Sewerage and Water Works.
WE OPERATE THROUGHOUT THE SOUTH.

M. AM. SOC. C. E. M. AM. SOC. M. E.
OLIN H. LANDRETH,
NASHVILLE, TENN.
CONSULTING ENGINEER.

Water Works, Water Power, Drainage, Re-

clamation, Improvement of Highways and Street

Paving, Topographical Surveys and Maps. Ex-

aminations, Expert Tests, Reports, Designs,

Specifications and Estimates.

J. D. & WM. G. MOLER,
Civil and Consulting Engineers,
SPRINGFIELD, OHIO. CHARLESTON, W. VA.
Water Works, Sewerage, Railroads, Mineral
and Timber Surveys and Townsites.
Construction Superintended.

ALBERT D. PENTZ,
Mem. Am. Soc. Mech. Eng.
CONSULTING ENGINEER.
Modern Shop Practice and Tools
Labor Saving Machinery Designed.
ELIZABETH, N. J.

R. F. HARTFORD,
CONSULTING ENGINEER,
Equitable Building,
ATLANTA, GA.

Sewerage and Sewage Disposal.
Water Supply and Water Power.
Steam and Electric Power Plants.
Expert Tests, Examinations and Reports.
Plans, Estimates & Specifications.
Supervision of Work.

ARTHUR L. STEVENS,
MECHANICAL ENGINEER,
11 South Ninth St., Philadelphia, Pa.

ICE MACHINERY AND REFRIGERATING PLANTS.
Special Machinery Designed and Built
by Contract.

W. B. SMITH WHALEY,
Mechanical Engineer,
[MEM. A. S. M. E.]

Plans, Specifications and Drawings for Cotton
Mills, Fertilizer Factories, Acid Chambers, &c.
Power Plants—Steam, Water and Electrical.
Water Powers Rated and Sites Surveyed.

Main Street, Columbia, S. C.

STEAM. GAS.

DELEW & BAILEY,
Electrical and Mechanical Engineers
213 EAST LOMBARD STREET.
ELECTRICITY. GASOLINE.

JOSIAH PIERCE, JR.
[A. M. I. C. E.]

Civil and Topographic Engineer,
1324 F St., Washington, D. C., and 11 South St., Baltimore, Md.
Topographic Surveys of any extent and character
organized and executed.

GEORGE N. COMLY,
Consulting Mechanical Engineer,
904 Adams Street, WILMINGTON, DEL.

Steam Engines Indicated. Boilers Tested for
evaporative efficiency and Steam Expert Work
in general. Factories designed. Drawings and
specifications furnished on application. Correspondence solicited.

45 Broadway, New York.
CONSULTING ENGINEER.

T. WALN-MORGAN DRAPER,
Civil, Mining and Mechanical Engineer.

Eighteen years' experience in the South and
West. Examines, Advises and Superintends
Commercial Enterprises. Correspondence and
consultation solicited.

JOHN N. ADAMS,
Civil Engineer and Contractor

606 N. 10th Street, RICHMOND, VA.

All kinds of engineering work contracted for
and carried out on shortest notice, including
designing and constructing. Surveys. Plans
and estimates made for every class of engineering.
Railroads. Water-powers developed.
Sewerage and water supply. Mining surveys.
Townsites laid off. Topographical, bird's-eye
view maps and landscape engineering a specialty.
Large staff of assistants always ready.

CORRESPONDENCE SOLICITED.

W. H. GIBBES, JR. & CO.
ENGINEERS, CONTRACTORS.

AND DEALERS IN
Farm and Mill Machinery,
COLUMBIA, S. C.

FREDERICK J. AMWEG, C. E.
Mem. Am. Soc. C. E.

Engineer, Contractor and Builder,

Hale Building, Rooms 42-43, Philadelphia.

Southern Office, Commercial Bank Building, Roanoke, Va.

JOHN C. CHASE,
Hydraulic & Sanitary Engineer
WILMINGTON, N. C.

Professional advice regarding Water Supply,
Sewerage and the Development of Water Power.
Surveys, Plans, Specifications, and Estimates.
Examinations and Reports for Investors

C. AD. MEZGER,
Mining Engineer,
P. O. Box 147,
CHARLOTTE, N. C.

Reports on mineral properties. Advises on
the working and management of mines. Ex-
amines and tests ores for treatment with the
Marthar-Forrest process. Drilling and concen-
trating of ores a specialty.

A. LEOFRED,
(Graduate of Laval and McGill)
MINING ENGINEER,
MAIN OFFICE, QUEBEC.
Branch } SHERBROOK.
Offices } MONTREAL, 17 Place d'Armes Hill.
MINES, MINERAL PRODUCTS.

WALTER M. STEIN,
METALL. ENGINEER,
325 Walnut St., Philadelphia, Pa.
Coal Washing and Separating Plants.
Improved Belgian Coke Ovens, with or without
saving of by-products.
Blast Furnace Plants.

Chemical and Metallurgical Examinations,
ANALYSES AND REPORTS.

FREDERIC P. DEWEY,
Washington Laboratory and Metallurgical Works,
621 F. Street, N. W. Washington, D. C.

THE LEDOUX CHEMICAL LABORATORY,
CHEMISTS,
N. 9 Cliff Street, New York.

Analyses of Paints, Oils, Chemicals, Phosphates,
Fertilizers, Minerals, Waters, Pyrites, etc., etc.
Expert Examinations and Investigations of
Processes and Chemical Works. Send for terms.

JNO. M. McCANDLESS,
Analytical and Consulting Chemist
66 Old Capitol Building, ATLANTA, GA.
Chemist to the State Geological Survey.
Chemist to Atlanta Board of Health.
Analyses of Ores, Phosphates, Minerals, Waters,
&c.

JOHN SANDERSON,
F. C. S. A. I. C.
Analytical Chemist and Assayer,
MIDDLESBOROUGH, KY.

DR. HENRY FROELING,
Analytical and Consulting Chemist,
17 SOUTH 12th STREET,
Richmond, Va.

Analyses and assays of ores of every kind,
iron, steel and other metals, coal and coke, clays,
marls and limestones, phosphates and fertilizers,
mineral waters, waters for drinking and for
boiler use, oils, commercial products, etc.
Price lists of analyses sent on application.
Geological and chemical investigation of mineral
properties of the South.

Philadelphia Metallurgical Works,
No. 227 Wood Street,
PHILADELPHIA, PA.

JOHN F. CARTER, Manager.

ASSAYS: Gold, Silver, Copper, Lead or Iron,
\$3.00; Zinc, Antimony or Tin, \$5.00; Gold, Silver
and Copper or Lead \$6.00. Practical working
tests of gold and silver ores. Gold mines in
the South, and the economic treatment of their
ores a specialty. Mines carefully examined and
reported on. All kinds of the latest improved
mining machinery furnished.

G. T. WOOD MFG. CO.
CONTRACTORS

Safety Electric Railway Systems.

Manufacturers and Dealers in
Electrical Specialties

136 Liberty St., New York City.

CLASSIFIED INDEX OF ADVERTISERS.

FOR "ALPHABETICAL INDEX" SEE PAGE 46.

Ore Washers.

Beckett Foundry & Mch. Co., Arlington, N. J.
Copeland & Bacon, New York, N. Y.
McLanahan & Stone, Hollidaysburg, Pa.

Packing.

N. Y. Belt. & Pack. Co., Ltd., New York, N. Y.
Crandall Packing Co., Palmyra, N. Y.
Forest Sil. Bronze Pack. Co. New York, N. Y.
James Smith Woolen Mch. Co., Philadelphia, Pa.
Jenkins Bros., New York, N. Y.
W. W. Johns Mfg. Co., New York, N. Y.

Paint.

Virginia Paint Co., Goshen, Va.
A. Rasch & Son, St. Louis, Mo.
Texas Coal Tar & Asphaltum Co., Dallas, Tex.
H. W. Johns Mfg. Co., New York, N. Y.
Canton Steel Roofing Co., Canton, Ohio.
Joseph Dixon Crucible Co., Jersey City, N. J.

Paint Machinery.

P. M. Walton, Philadelphia, Pa.
Thompson & Campbell, Philadelphia, Pa.
W. D. Dunning, Syracuse, N. Y.

Paper Mill Machinery.

Holyoke Stm. Boiler & I'n Wks., Holyoke, Mass.

Patent Attorneys.

Knight Bros., Washington, D. C.
W. T. Fitz Gerald, Washington, D. C.
Patrick O'Farrell, Washington, D. C.
S. Brashears, Washington, D. C.
Geo. P. Whittlesey, Washington, D. C.
Du Bois & Du Bois, Washington, D. C.
Donaldson & Co., Washington, D. C.
George E. Lemon, Washington, D. C.
Glascock & Co., Washington, D. C.
Champion & Champion, Washington, D. C.

Pattern Makers.

Alford & McCarthy, Chattanooga, Tenn.

Perforated Metal.

Harrington & King Perfor. Co., Chicago, Ill.

Phosphor-Bronze.

Paul S. Reeves, Philadelphia, Pa.
Crown Smelting Co., Chester, Pa.
Phosphor-Bronze Smelt. Co., Philadelphia, Pa.

Pipe. (Cast Iron and Steel.)

Radford Pipe & Foundry Co., Cincinnati, O.
Howard-Harrison Iron Co., Bessemer, Ala.
John Simmons Co., New York, N. Y.
The Glamorgan Co., Lynchburg, Va.
Wells Rustless Iron Co., Little Ferry, N. J.
Chattanooga Fdy. & P.Wks., Chattanooga, Tenn.

Pipe. (Sewer and Culvert.)

Henry Stevens' Sons, Macon, Ga.

Pipe. (Wood.)

A. Wyckoff & Son, Elmira, N. Y.

Pipe. (Wrought Iron.)

Oil Well Supply Co., Pittsburgh and New York

Pipe Covering.

Keashey & Mattison Co., Ambler, Pa.
Delbert Engineer'g Co., Ltd., New Orleans, La.
H. F. Watson Co., Erie, Pa.

H. W. Johns Mfg. Co., New York, N. Y.

A. Wyckoff & Son, Elmira, N. Y.

Pitch. (Roofing and Paving.)

Ehret-Warren Mfg. Co., St. Louis, Mo.
Texas Coal Tar & Asphaltum Co., Dallas, Tex.

Plaster. (Wall.)

Lone Star Plaster Co., Quanah, Texas.

Plumbers' Supplies and Tools.

Charleston Lead Co., Charleston, S. C.
Brown & King Supply Co., Atlanta, Ga.
H. Mueller Mfg. Co., Decatur, Ill.
John Simmons Co., New York, N. Y.
West & Branch, Richmond, Va.

Haines, Jones & Cadbury Co., Philadelphia, Pa.
Pancoast & Maule, Philadelphia, Pa.

D. Saunders' Sons, Yonkers, N. Y.

Presses. (Baling, etc.)

Central Machine Works, Cleveland, O.
Cardwell Machine Co., Richmond, Va.

H. Dudley Coleman Mch. Co., Ltd., New Orleans.

Boomer & Boschart Press Co., Syracuse, N. Y.

Valk & Murdoch Iron Works, Charleston, S. C.

Pulleys, Shafting and Hangers.

Todd Pulley & Shafting Wks., E. St. Louis, Ill.

Philadelphia Eng. Works, Ltd., Philadelphia, Pa.

J. B. Allfree Mfg. Co., Indianapolis, Ind.

McKaign I. & S. Shaft. Wks., Cumberland, Md.

E. M. Freese & Co., Galion, O.

S. D. Warfield Co., Baltimore, Md.

Geo. R. Lombard & Co., Augusta, Ga.

Struthers, Wells & Co., Warren, Pa.

P. Pryibil, New York, N. Y.

C. A. Potts & Co., Indianapolis, Ind.

Walker & Elliott, Wilmington, Del.

Webster Mfg. Co., Chicago, Ill.

Fitzsimons & Co., Cleveland, O.

Taper-Sleeve Pulley Works, Erie, Pa.

James Smith Woolen Mch. Co., Philadelphia, Pa.

Webster, Camp & Lane Machine Co., Akron, O.

H. W. Caldwell & Son Co., Chicago, Ill.

Walker Mfg. Co., Cleveland, O.

H. Dudley Coleman Mch. Co., Ltd., New Orleans.

Talbot & Sons, Richmond, Va.

N. Y. Safety Steam Power Co., New York, N. Y.

Pumps. (Hand and Power.)

Otis Bros. & Co., New York, N. Y.
American Well Works, Aurora, Ill.
Deming Co., Salem, O.
U. S. Wind Engine & Pump Co., Batavia, Ill.

Pumps. (Oil.)

Sherwood Mfg. Co., Buffalo, N. Y.

Pumps. (Steam.)

Delbert Engineer'g Co., Ltd., New Orleans, La.
John H. McGowan Co., Cincinnati, O.
John E. Beggs M. & Sup. Co., New York, N. Y.
Morris Machine & Iron Co., Dover, N. J.
Downie Bros. & Nevin, New Brighton, Pa.
Union Fdy. & Mch. Works, Rockaway, N. J.
Laidlaw & Dunn Co., Cincinnati, O.
U. S. Wind Engine & Pump Co., Batavia, Ill.
Smith & Vaile Co., Dayton, O.
Morris Machine Co., Baldwinsville, N. Y.
Van Duzen & Tift Co., Cincinnati, O.
American Well Works, Aurora, Ill.
John Maslin & Son, Jersey City, N. J.
Henry R. Worthington, New York, N. Y.
Pulsmeter Steam Pump Co., New York, N. Y.
Valley Pump Co., Easthampton, Mass.
Dean Bros. Stm. Pump Wks., Indianapolis, Ind.
Blakeslee Mfg. Co., Du Quoin, Ill.
A. S. Cameron St. Pump Wks., New York, N. Y.
Boggs & Clarke, Syracuse, N. Y.

Punching and Shearing Machinery.

Long & Allstatter Co., Hamilton, O.
Lloyd Booth Co., Youngstown, O.
Niagara Stamping & Tool Works, Buffalo, N. Y.
Bement, Miles & Co., Philadelphia, Pa.
S. C. Forsyth Machine Co., Manchester, N. H.

Quarry and Stonecutting Machinery.

Beckett Foundry & Mch. Co., Arlington, N. J.
American Hoist & Derrick Co., St. Paul, Minn.
Copeland & Bacon, New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.
Morris Machine & Iron Co., Dover, N. J.
American Well Works, Aurora, Ill.
Gates Iron Works, Chicago, Ill.
Rand Drill Co., New York, N. Y.
Ingersoll-Sargeant Rock D. Co., New York, N. Y.
M. C. Bullock Mfg. Co., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, O.
Webster, Camp & Lane Machine Co., Akron, O.
Lincoln Iron Works, Rutland, Vt.

Railroads.

Southern Pacific Railway Co., New Orleans, La.
Queen & Crescent Route, Cincinnati, O.
Cleveland, Canton & South'n R.R., Cleveland, O.
Chicago, Milwaukee & St. Paul R.R., Chicago, Ill.
Wheeling & Lake Erie Railroad, Cleveland, O.
Pittsburg & Lake Erie Railroad, Cleveland, O.
Cleveland, Lorain & Wheel'g R.R., Cleveland, O.
Cincinnati, Hamilt'n R.R., Cincinnati, O.
Valley Railway, Cleveland, O.
Piedmont Air Line, Atlanta, Ga.
Western Maryland Railroad, Baltimore, Md.

Railroad Equipment and Supplies.

(New and Second-Hand.)
E. H. Stafford Co., Grand Rapids, Mich.
E. M. Hopkins, Savannah, Ga.
Pennsylvania Steel Co., New York, N. Y.
W. W. Marmaduke, Washington, Ind.
International Rail'y Equip'g & Sup. Co., New York.
Southern Iron & Equipment Co., Atlanta, Ga.
A. T. Shoemaker, New York.
George Place Machinery Co., New York, N. Y.
George A. Evans, New York, N. Y.
J. H. Richardson & Co., Pittsburgh, Pa.
A. S. Males & Co., Cincinnati, O.
Robinson & Orr, Pittsburgh, Pa.
New York Equipment Co., New York, N. Y.
Weir Frog Co., Cincinnati, O.
Humphreys & Sayce, New York, N. Y.
Richmond Locomotive and Machine Works, Richmond, Va.
H. K. Porter & Co., Pittsburgh, Pa.
Baldwin Locomotive Works, Philadelphia, Pa.
Wm. Minningerode, Lynchburg, Va.
Webster Mfg. Co., Chicago, Ill.

Real Estate. [See Towns.]

Phillips Land & Gas Co., Alexandria, Ind.
W. W. Watson & Co., Chicago, Ill.
A. M. Cochran, Gainesville, Ga.
L. Breckinridge Cabell, New York, N. Y.
McClure & Maxwell, Knoxville, Tenn.
Solon B. Turman, Tampa, Fla.
Perry Nugent, Greenville, Miss.
Geo. A. Hyde, Washington, D. C.

Regulators. (Water Pressure.)

H. Mueller Mfg. Co., Decatur, Ill.
Henry R. Worthington, New York, N. Y.

Road Machinery.

O. S. Kelly Co., Springfield, O.
Southern Equipment Co., Chattanooga, Tenn.

Rolling Mill Machinery.

Covington Naching Co., Covington, Va.

Union Foundry & Mch. Wks., Rockaway, N. J.

Roofing. (Felt, Tar, Paper, etc.)

A. Rasch & Son, St. Louis, Mo.

H. W. Johns Mfg. Co., New York, N. Y.

Texas Coal Tar & Asphaltum Co., Dallas, Tex.

Ehret-Warren Mfg. Co., St. Louis, Mo.

Empire Paint & Roofing Co., Philadelphia, Pa.

Roofing and Siding. (Metal.)

Fostoria Steel Roofing Co., Fostoria, O.

Corticraft Metal Roofing Co., Philadelphia, Pa.

Acme Roofing Co., Canton, O.

Cushman Iron Co., Roanoke, Va.

Merchant & Co., Philadelphia, Pa.

J. H. Eller & Co., Canton, O.

Sims Mfg. Co., Newark, O.

Cincinnati Corrugating Co., Piqua, O.

Canton Steel Roofing Co., Canton, O.

Globe Iron Roofing & Cor. Co., Cincinnati, O.

Kanneberg Roofing Co., Canton, O.

Holton Iron Roofing Co., New Lisbon, O.

Cambridge Roofing Co., Cambridge, O.

The Berger Mfg. Co., Canton, O.

Roofing. (Metal Shingles.)

Montrose Metal Shingle Co., Camden, N. J.
Beldin Ma. hine Co., New Haven, Conn.
Berger Bros., Philadelphia, Pa.

Rubber Goods.

N. Y. Belt. & Pack. Co., Ltd., New York, N. Y.

Saws. [See Woodworking Machinery.]

Southern Saw Mfg. Co., Atlanta, Ga.
Emerson, Smith & Co., Beaver Falls, Pa.
W. F. & John Barnes Co., Rockford, Ill.
E. C. Atkins & Co., Indianapolis, Ind.

Saw Mill Machinery.

Mitts & Merrill, East Saginaw, Mich.
Wheland's Fdy. & Mch. Wks., Chattanooga, Tenn.
Manly Machine Co., Dalton, Ga.
Cameron & Barkley Co., Charleston, S. C.
Brennan & Co., Louisville, Ky.
Struthers, Wells & Co., Warren, Pa.
H. P. Edmond, Richmond, Va.
H. Dudley Coleman Mch. Co., Ltd., New Orleans.
Green Machinery Co., Knoxville, Tenn.
U. S. Machine Co., Williamsport, Pa.
Frick Co., Waynesboro, Pa.
Egan Co., Cincinnati, O.
S. C. Forsyth Machine Co., Manchester, N. H.
E. B. Holmes, Buffalo, N. Y.

Scales.

Buffalo Scale Co., Buffalo, N. Y.

Scroll Saws. [See Woodworking Machinery.]

H. L. Beach, Montrose, Pa.
W. F. & John Barnes Co., Rockford, Ill.

Shafting. [See Pulleys.]**Sheet Metal Working Machinery.**

Toledo Machine & Tool Co., Toledo, O.
Niagara Stamping & Tool Co., Buffalo, N. Y.
Geo. W. Heartley, Toledo, O.

Shingle, Lath and Stave Machinery.

[See Woodworking Machinery.]

Sheet Metal Working Machinery.

Toledo Machine & Tool Co., Toledo, O.

Niagara Stamping & Tool Co., Buffalo, N. Y.

Geo. W. Heartley, Toledo, O.

Shoe Machinery.

Carver Cotton Gin Co., East Bridgewater, Mass.

Skylights.

Toledo Cornice Works, Toledo, O.
E. Van Noorden & Co., Boston, Mass.

Spirklers. (Automatic.)

Neracher & Hill Sprinkler Co., Warren, O.
Providence St. & Gas Pipe Co., Providence, R. I.

Standpipes.

Holyoke Stm. Boiler & I'n Wks., Holyoke, Mass.
Aultman & Taylor Machinery Co., Mansfield, O.
Sharon Boiler Works, Ltd., Sharon, Pa.

U. S. Wind Engine & Pump Co., Batavia, Ill.

Enterprise Boiler Co., Youngstown, O.

Philadelphia Eng. Wks., Ltd., Philadelphia, Pa.

Steam Feed. (For Saw Mills.)

Soule Steam Feed Works, Meridian, Miss.

Steam Riding Galleries.

Armitage-Herschell Co., Hornellsville, N. Y.

Owen & Margeson, Hornellsville, N. Y.

Steam Shovels. [See Dredges and Excavators.]**Steamship Lines.**

Richmond & York River Line, Baltimore, Md.

Murrell's Line, Brunswick, Ga.

Merchants & Miners' Trans. Co., Baltimore, Md.

Furness Line, Baltimore, Md.

Bay Line Steamers, Baltimore, Md.

Baltimore Storage & Light Co., Baltimore, Md.

Steel Lathes.

Bostwick Metal Lath Co., New York, N. Y.

Steel (Mushets.)

B. M. Jones & Co., Boston, Mass.

Steel Rails. [See Railroad Equipment and Supplies.]

Connellsville Standard Bee-Hive Coke Ovens.



Gates Bros. & Sharp,
Contractors and
Builders

Coke Plants Complete
a specialty.

Railroad Work, &c.

Correspondence Solicited.

CORINTH,
Preston County, W. Va.

JULIAN KENNEDY,

Consulting and Contracting Engineer.

Rooms 36-39 Vandergrift Building, Pittsburgh, Pa.

Blast Furnaces, Bessemer and Open Hearth Steel Works, Rolling Mills, Steam
and Hydraulic Machinery, Heating Furnaces, Gas Producers, &c.

BRANCH OFFICE OF THE LATROBE STEEL WORKS.

ALL PLANS, specifications, estimates, etc., are based on
ACTUAL EXPERIENCE in large and properly
built and managed works. FULL INSTRUCTIONS given
on all points relative to Chemical, Phosphate or Soap Works.

HERMAN POOLE, CHEMICAL ENGINEER,

Temporary address, care Maritime Sulphite Pulp Co., 153 W. 23d St., New York.
Chatham, New Brunswick.

S. W. FRESCOLN,
ENGINEER AND CONTRACTOR,
WORLD BUILDING, NEW YORK.

DESIGNS AND BUILDS COMPLETE

Bridges, Iron Structures, Water Works, Sewerage and Street Work, Blast
Furnace and Steel Plants; Steam, Electric and Cable Ry's.

BONDS NEGOTIATED. COMPANIES ORGANIZED. ESTIMATES FREE

AMERICAN
BRIDGE AND
IRON COMPANY

ENGINEERS: CHAS. C. WENTWORTH.
JOS. L. HUNTER.

Also, MACHINISTS AND FOUNDERS.

DESIGNERS AND BUILDERS
of IRON and STEEL
BIRDGES and VIADUCTS for
HIGHWAYS and
RAILROADS, IRON FURNACE
PLANTS.

ROANOKE, VIRGINIA.

Pig Iron.
Bar Iron.
Structural Iron and Steel.
Sheet Iron and Steel.
Lead and Shot.
Iron Fence Material.
Horse Shoes.
Nails.
Steel Castings.
Dealers in
Scrap Iron and Old Rails.

HARRIS & THORNTON,
Manufacturers' Agents and Lumber Brokers,
No. 3 Arcade, Chattanooga, Tenn.



PHOSPHOR-BRONZE
INGOTS, CASTINGS, WIRE, SHEET &c.
THE PHOSPHOR BRONZE SMELTING CO. LIMITED
512 ARCH ST. PHILADELPHIA PA. U.S.A.
ORIGINAL MANUFACTURERS OF PHOSPHOR-BRONZE IN THE UNITED STATES AND SOLE
MAKERS OF "ELEPHANT BRAND" PHOSPHOR-BRONZE.

THOS. F. BISHOP & CO.

Manufacturers of All Kinds of

MACHINERY

AND DEALERS IN SECOND-HAND MACHINERY.

Engines, Boilers, Heaters, Pumps, Injectors, Brass Fittings, Hoisting Machines,
Shafting, Couplings, Pulleys, Hangers, Steam Pipe Fitting, Etc. Emery Wheels,
Buffing Wheels, Emery Stands for Machine Shop and Foundry Use.

211 EAST PEARL STREET,

CINCINNATI, OHIO.

Manufacturers' Permanent Exhibition.

Over \$60,000 Worth of Business Done Through This Agency in Less
Than Three Months.

MANUFACTURERS of any kind of goods, machinery or other fabrics requiring representation in
the South are invited to correspond with the undersigned.

STEAM being continually kept up, all machinery is constantly moving.

PRIVATE ROOMS for exhibitors to meet purchasers.

EXPERTS KEPT to explain manufactures and push sales in each department.

LOCAL AND GENERAL commercial reports, trade journals, private writing rooms, etc.

A new and unique method of advertising and getting your goods drummed at a nominal cost.

For full particulars, apply to

JOHN N. ADAMS & N. 10th St., Richmond, Va.

Exhibits also taken for the Second Grand State Exposition, of Virginia; commencing October 6,
to October 26, both days inclusive.

BEYANT IMPROVED AUTOMATIC
High-Speed Safety Engine.

Manufactured by
THE WHITMAN &
BARNES MFG. CO.

Syracuse, N. Y.

Automatic governor non-explosive

boiler, no extra insurance, no engineer, no sparks, ashes or smoke.

Specially designed for those wanting power from 2 to 5

h.p. This is the safest, cheapest and most reliable

power known. Fuel—kerosene oil or natural gas

power known. Fuel—kerosene oil or natural gas</

SHEPARD'S NEW 300 Screw-cutting Foot Lathes.
Foot and Power Lathes, Drill Presses, etc. Saw Attachment Chucks, Mandrels, Twist Drills, Dogs, Calipers, etc.
Lathes on trial. Lathes on payment.
Send for catalogue of Outfits for Amateurs or Artisans.
Address H. L. SHEPARD, Agent.
41 W. 2d Street, Cincinnati, Ohio.

STOW MFG. CO.

ESTABLISHED 1875.

Inventors and Manufacturers of the

STOW FLEXIBLE SHAFT
BINGHAMTON, N.Y.
For TAPPING and REAMING STAY BOLTS in BOILERS, BRIDGEWORK, POR-TABLE DRILLING.
Send for illustrated catalogue; many new devices.

H. A. WILLIAMS MFG. CO.
SOLE MANUFACTURERS OF THE
WILLIAMS "DRAPER" "SYPHON"
STEEL AND BRASS OILERS AND LAMPS.
334 CONGRESS ST. 55 FULTON ST.
BOSTON MASS. THE
DAISY
STEEL CAN
ILLUSTRATED CATALOGUE
FREE BY MAIL.

THE SIMPSON STORAGE BATTERY.

81.25
EACH CELL.
1, 2, 3 or 4 cells
in oak case.
\$1.25 per
cell.
E. F. M., 2 3/10
volts
Capacity, 20
ampere hours
per cell.
Can be charged
with Gravimatic
Battery. For lighting
small incandescent
lamps, running
motors and exper-
imental work.

Simpson Elec. Mfg. Co., 39-41 W. Washington St., Chicago,

H. WARD LEONARD & CO.

136 Liberty Street,

NEW YORK CITY.

Bulk Electric Contractors

FOR

COMPLETE PLANTS OF EVERY KIND,

Including Buildings, Steam Plants, Water Powers, Electric Generating Plants, Pole Lines, Underground Work, Rail Beds, Bridges, Motors, Inside Wiring, etc.

Having no agencies and no connection with any manufacturing concern, we install any apparatus and any system desired.

Nine years' experience.

OLLESS BEARINGS.
Metallized Loose Pulley Bushes require no oil or other lubricant, either at the start or occasionally afterwards, will run perfectly dry for years. Send for Loose Pulley Circum No. 5.

FORREST SILVER BRONZE PACKING.
Applied to any stuffing box without disconnecting Steam, air and water-tight without the aid of soft packing under highest steam pressure and greatest velocity. Automatic admittance excess steam vibration, a. lashing and crowding of rod, does not bind, economical, guaranteed to last and never packing. Used by largest Iron Works Steamships and Electric Light Companies for years. Agents wanted. **FORREST SILVER BRONZE PACKING CO.** 118 Liberty St., NEW YORK.

WIRE RAILING
AND
ORNAMENTAL WIRE WORKS.

DUFUR & CO., 311 N. Howard St., Baltimore.

Wire Railing for Cemeteries, Lawns, Gardens, Offices and Balconies. Window Guards, Tree Guards, Wire Cloth, Sieves, Fenders, Cages, Sand and Coal Screens. Iron Bedsteads, Chairs, etc.

H. BALDERSTON & SON,
(ESTABLISHED 1793)

122 South Calvert Street, BALTIMORE, MD.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

LUDLOW
SAYLOR
WIRE CO.
BOSTON, MASS.

Metal Work for Interior and Exterior
Decorations a Specialty.
Write for Catalogue.

G. L. Stuebner & Co.
Successors to Stuebner & Woods,
MANUFACTURERS OF
Self-Dumping Steel & Iron
Hoisting Tubs,
Side and Bottom Dumping
Cars for Coal Elevators,
Iron Wheelbarrows, Hoisting
Blocks, Bottom-dumping Tubs
or Coalings Locomotives, &c.
LONG ISLAND CITY, N.Y.
Send for circular and prices.

SOAP-DIES & PRESSES.
SOAP SCHUBERT & CO. **CANDLE**
MACHINERY 111 VINE ST. BROOKLYN, N.Y. MACHINERY.
ESTIMATES & CATALOGUES FREE.

IRON AND STEEL

RUSTLESS.
RUSTLESS IRON WATER PIPE
Send for Catalogue.

THE WELLS RUSTLESS IRON CO.

Little Ferry, N.J.

SEND FOR NEW PRICES

GEM WIRE

Coat and Hat Hooks

PATENTED.

MANUFACTURED BY
MANUFACTURED BY

VAN WAGONER & WILLIAMS CO.

14 Warren St., New York.
Cleveland, Ohio.

Catalogue of Spring Hinges, Door Springs, Wire Coat and Hat Hooks, Blind Adjusters, &c., on application.

HOME STUDY OF
MINING
AND
PROSPECTING
For FREE Circular send to The Correspondence School of Mines, Scranton, Pa.

WIRE RAILING,
WIRE SCREENS, WIRE CLOTH,
And All Kinds of WIRE WORK for Churches,
Institutions, etc.

H. BALDERSTON & SON,
(ESTABLISHED 1793)

122 South Calvert Street, BALTIMORE, MD.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

ART METAL WORK

In Wire, Brass and Wrought Iron,
Bank and Office Railings.

W. S. SAYLOR & CO., BOSTON, MASS.

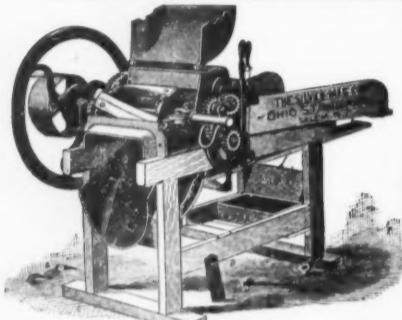
ART METAL WORK</

JORDAN & MacLEOD,

WASHINGTON, D.C.

BALTIMORE OFFICE, 313 WATER ST
Agents for the DETROIT ELECTRIC MOTORS and
DYNAMOS. MOTOR BRUSHES in stock and made
to order. Commutators furnished and put on.
Fields and Armatures wound. Motors over-
hauled. Isolated plants fully equipped. Every-
thing guaranteed. Correspondence solicited.

EXHAUST TUMBLERS WIRE NAIL MACHINES

WM. A. SWEETSER,
BROCKTON, MASS.

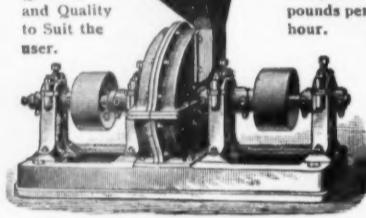
The "OHIO" Ensilage and Fodder Cutters.

LARGE AND COMPLETE LINE OF
Special Ensilage and General Purpose Machines.The SILVER MFG. CO.
SALEM, OHIO.

The Cogswell Mill

For Grinding Cotton Seed, Oil Cake
and Feed Meal.

Guaranteed to
Grind
Quantity
and Quality
to Suit the
user.

M. C. COGSWELL,
18 Vesey Street, NEW YORK CITY.

Send for Catalogue and Price List.

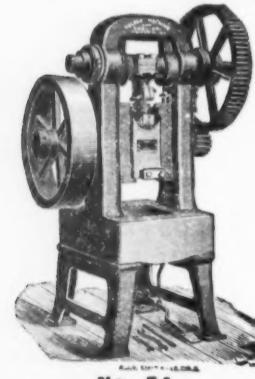
THE TOLEDO MACHINE & TOOL CO.
MAKERS OF

Presses, Dies, Sheet Metal Tools

AND

SPECIAL MACHINERY

We are now building a complete line of
Presses, and can furnish almost anything in this
line. Get our prices when in the market for a
Press, Die or Special Machine. Write for de-
scriptive circular and prices.

THE TOLEDO MACHINE & TOOL CO.
501, 503 and 505 Superior St.
TOLEDO, OHIO.

No. 54.

H. DUDLEY COLEMAN MACHINERY COMPANY,

LIMITED.

NEW ORLEANS, LA.

—MAKERS AND DEALERS IN—

ENGINES, BOILERS, PRESSES,

Corn and Saw Mills, Shafting, Pulleys, Bearings, Belting.

SEND FOR NEW CATALOGUE, JUST OUT, DESCRIBING

WILLIAMES' VACUUM SYSTEM OF STEAM HEATING

Which can be attached to the present return pipes of any steam heating plant. Furnished upon 30 days' trial.

ADVANTAGES GUARANTEED.

Relief of back pressure upon engine. Positive circulation of steam throughout the entire system. Dispenses with all cracking and hammering noises, and saving repair bills. Maximum efficiency of the present piping with saving of from ten to forty per cent. of fuel—exact percentage can be determined after an examination of the plant.

Patent Sustained in the U. S. Circuit Court.

Adopted by over 400 of the largest Factories, Mills, Electric Light Companies, Market Houses, Office Buildings, Schools, Theatres, Churches and Railroad Stations.

WARREN WEBSTER & CO.

Managers and Sole Licensees for the sale of Patent Rights in the United States.

Main Office and Works, 491 N. 3d Street, Philadelphia.

Patentees, Proprietors and Managers of the WEBSTER VACUUM FEED WATER HEATER AND PURIFIER. Send for Catalogue.

The Sturtevant Patent Progressive Lumber Dry Kiln

THE OLDEST IN THE FIELD.

Send for illustrated catalogue No. 32 of Steam
Hot Blast Heating and Drying
Apparatus.

B. F. STURTEVANT CO., 34 Oliver Street, BOSTON, MASS.

BRANCHES—91 Liberty St., New York. 16 S. Canal St., Chicago. 135 N. Third St., Philadelphia, Pa.

W. E. CALDWELL CO.
MANUFACTURERS OF

CLEAR CYPRESS TANKS.

Patent Sectional Iron Towers, Patent Sectional
Combined Wood and Iron Towers. Largest
manufacturers in the United States. Write for
price list.

LOUISVILLE, KY.

LOUISIANA
RED CYPRESS.
135 SIZES
ROUND
TANKS.
MICHIGAN
WHITE PINE.
WILLIAMS MFG. CO.
KALAMAZOO, MICH.
Sales Offices:
16 Murray St., NEW YORK.
38 S. Market St., BOSTON.
301 Vine St., PHILADELPHIA.



Covert Web Goods, Rope Goods, Snap and Chain Goods

bear the above TRADE MARK, and are sold by all LEADING JOBBERS at
Manufacturers' prices.

Covert Mfg. Co..

WEST TROY
NEW YORK.

NO SKILLED ENGINEER

The Shipman Automatic Steam Engine

Petroleum, Kerosene and Natural Gas Fuel.

1, 2, 4, 6 and 8
Horse-Power.STATIONARY and
MARINE.The MOST EFFICIENT, RELIABLE and
SATISFACTORY POWER for Small Manufacturing
Purposes.

. . . THREE STRONG POINTS. . .

Uniformity of Speed.
Steady Steam Pressure.
Regular Supply and Even Level of Water in
Boiler.

SHIPMAN ENGINE CO.,

200 Summer St., BOSTON, MASS.

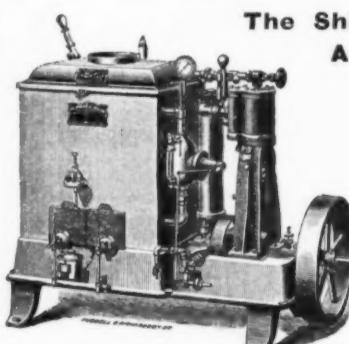
Western Agency, WELLS B. SIZER, 189 State Street, Chicago.

Southern Agency, S. L. MITCHELL, 34 Magazine Street, New Orleans, La.

HAWTHORN & CO., 114 Liberty Street, New York City.

THIS SPACE IS RESERVED

FOR

The Miller Safe & Iron Works,
BALTIMORE, MD.COPYRIGHT
1888

NEW YORK BELTING & PACKING CO.

LIMITED.

JOHN H. CHEEVER, Manager. 15 Park Row, N. Y.

Oldest and Largest Manufacturers in the U. S.

OF

VULCANIZED RUBBER FABRICS,

Adapted to Mechanical Purposes.

RUBBER BELTING,
PACKING AND HOSE.

Rubber Mats, Mattings and Stair Treads.



EXTRA RUBBER AND COTTON HOSE.

Circular Woven Seamless Antiseptic RUBBER-LINED "CABLE" HOSE and "TEST" HOSE for use of Steam Engines, Force Pumps, Rolling Mills, Iron Works, Factories, etc. Woven in a superior manner to insure Wear, Compactness and Durability.

Solid Vulcanite Emery Wheels.



SALESROOMS:

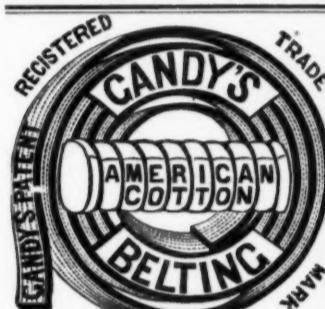
PHILADELPHIA, 308 Chestnut St.
BOSTON, 58 Summer St.
CHICAGO, 181 Lake St.
DENVER, 1601-1611 17th St.GRAND RAPIDS, 4 Monroe St.
MINNEAPOLIS, 26 South 2d St.
CLEVELAND, 178 Superior St.
CHARLESTON, 160 Meeting St.KANSAS CITY, 1311 and 3115 W. 12th St.
European Branch—38 and 100 Queen Victoria St., London, Eng and.SAN FRANCISCO, 17 Main St.
DETROIT, 48-50 Woodward Ave.
BALTIMORE, 18 N. Charles St.
NEW ORLEANS, 6-12 N. Peters St.
ST. LOUIS, 618 Locust St.

BLACK ENGLISH PICKER LEATHER

Imported by HENRY POPHAM & SON, East Newark, N. J.

MANUFACTURERS OF

RAWHIDE AND TANNED APRON BUTTS, OAK TANNED BELTING, RAWHIDE LACING.



The "Original Gandy"

Sewed Cotton Duck Belting.

Especially adapted for Main Drivers, Saw Mills, Cotton Gins, Cotton Presses, and for all places where belts are subjected to moisture or atmospheric changes, the "GANDY" stands paramount.

For further information, prices, etc., write

The Gandy Belting Co.
BALTIMORE, MD.

Southern Agents.—L. M. Rumsey Mfg. Co., St. Louis, Mo.; Smith-Courtney Co., Richmond, Va.; Beck & Gregg Hardware Co., Atlanta, Ga.; Baker, Sloo & Co., New Orleans, La.

THE BEST & CHEAPEST
BELTING IN THE WORLD
STITCHED CANVAS BELTING
THE CHESAPEAKE BELTING CO.
BALTIMORE, MD.HUMANE, STRONG,
CHEAPER THAN
BARB WIRE. Visible, Ornamental.

HARTMAN WIRE PANEL FENCE.

Double the Strength of any other Fence; will not stretch, sag or get out of shape. HARMLESS TO STOCK: a Perfect Farm Fence, yet handsome enough to ornament a lawn. Write for prices, descriptive circular and testimonials, also Catalogue of Hartman Steel Picket Lawn Fence, Tree and Flower Guards, Flexible Wire Mats, &c. Always mention this paper.

HARTMAN MFG. CO., Beaver Falls, Pa.

Branches—102 Chambers St., New York; 508 State St., Chicago; 51 and 53 Forsyth St., Atlanta.

Maule's "Skeleton" Pipe Die

Two "Points" about it—only 2 (There are plenty more, but we only mention these two here.)

The First Cost to you of MAULE'S "SKELETON" PIPE DIE is less than that of any other Pipe-Threading Die—and



Before it becomes dull from use it will cut as many perfect threads as the best solid die extant, and when it is dull, you don't throw it away and buy a new one—Oh, no! You simply sharpen the cutters on a common grindstone, and so make it practically as good as it was at first, and this sharpening process may be repeated a number of times.

A sample One-inch "Skeleton" Pipe Die, $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{16}$ thick, by mail, postage, prepaid, will cost you 62 cents, and will be sent upon receipt of a Postal note for that amount.

DO NOT SEND US ANY POSTAGE STAMPS.

You may return such sample to us, at our expense, if, after seeing it, you do not consider it worth the price. Don't the above sound as if it might save you some money—if TRUE?

PANCOAST & MAULE,
243-245 South Third St. Philadelphia, U. S. A.
ASK YOUR FARMER WHAT HE KNOWS ABOUT THIS TOOL.PHOSPHATE MACHINERY AND SUPPLIES, ENGINES, BOILERS,
SAW MILLS, and a full line of BAR IRON, IRON PIPE, VALVES, FITTINGS, RUBBER
and LEATHER BELTS. Write for our Large Illustrated Catalogue.
THE CAMERON & BARKLEY CO., CHARLESTON, S. C.IMPROVED
FERTILIZER MIXING MACHINESFOUR SIZES.
Capacities from 20 to 100 tons per day.
Complete Fertilizer Plants Designed, Erected
and Started.

C. H. DEMPWOLF & CO., York, Pa.

WALKER & ELLIOTT,

Manufacturers of
Fertilizer Mill Machinery.Automatic Mixers, Bone Mills, Breakers, Buhr Mills, Roller Machines, Pulverizers,
Rolling and Shaking Screens, Elevators, Pulleys, Etc.
Correspondence Solicited.

WILMINGTON, DEL.

The Charleston Lead Co.

CONTRACTORS FOR

THE ERECTION OF

SULPHURIC ACID CHAMBERS,

WITH ALL THE LATEST APPROVED APPLIANCES.

Parties contemplating a change from Sulphur Burners to Pyrites will consult their own interests by corresponding with us.

A corps of skilled lead burners in our employ sent to any point on application.

MANUFACTURERS OF

SHEET LEAD AND LEAD PIPE FOR ACID CHAMBERS, made only from brands of Pig Lead that have been carefully analyzed and found suitable for this purpose.

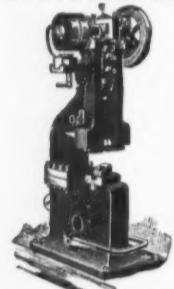
A large stock of ALL STANDARD SIZES AND WEIGHTS OF PIPE AND SHEET always on hand. PLUMBERS' ORDERS filled at sight. PIG LEAD for use of Water Works, Gas Works, &c., for sale.

WORKS, — STONE STATION, — S. C. R. R.

Office, 35 Broad Street, — CHARLESTON, S. C.



A LONG FELT WANT SUPPLIED.



A Power Hammer that is Controllable, Efficient and Durable.

TAKES THE MINIMUM OF POWER AND GIVES THE MAXIMUM OF EFFICIENCY.

The operator can control perfectly the force of the first or any succeeding blow and stop the hammer instantly.

FOR CATALOGUES AND PRICES ADDRESS

THE HACKNEY HAMMER CO.
Johnson Street, CLEVELAND, OHIO.

2000 IN USE.

Bradley Hammers

FOR 20 YEARS these Hammers have been in the market and during all that time have been acknowledged the very best. The material we use and our method of construction are the result of ripe experience and not the jumped-at conclusions of amateurs. Send for circulars and price lists.

BRADLEY & COMPANY,
SYRACUSE, N. Y.



Have Double Ratchet, Solid Frame, Adjustable Legs, Detachable Lever.

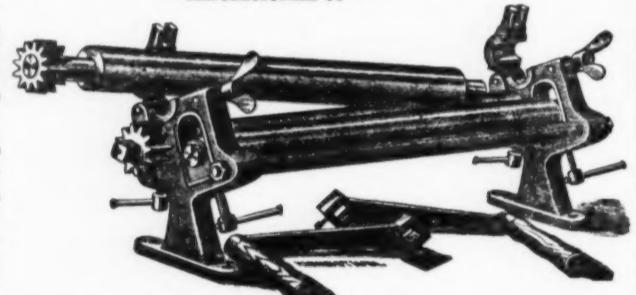
Run Lightest, Make Strongest Blast & Last Longest.
ALL DESIRABLE STYLES AND SIZES.

Sold by Hardware and Machinery Dealers everywhere. Send for Catalogue of these and Hand & Power Blower, Blacksmith Drill Presses, &c.

THE FOOS MFG. CO. SPRINGFIELD, OHIO.

NIACARA STAMPING & TOOL CO.

MANUFACTURERS OF



TINNERS' TOOLS and MACHINES,

Office and Works, Cor. Randall and Superior Streets, BUFFALO, N. Y.

Write for our Catalogue and Price-List. Please mention this paper.



Improved Screw Cutting Foot and Power LATHES.

Drill Presses, Shapers, Band Circular and Scroll Saws, Machinists' Tools and Supplies, Lathes on trial. Catalogue on application.

THE SEBASTIAN-MAY CO.
182-188 Highland Ave., SIDNEY, OHIO.



SEASTIAN LATHE CO.

116-118 Culvert Street, Cincinnati, O.

Manufacturers of Foot and Power

ENGINE AND SPEED LATHES,

For General Machine and Jobbing Shop, Electrical and Experimental Work.

Dealers in Machinists' Tools and Supplies.

E. M. NETTLETON, Pres., Covington, Va. JOHN S. HAN, Gen. Mgr., Covington, Va. MEREDITH LITCH, Sup't, Covington, Va. FRANK LYMAN, Treas., New York. JOS. L. HUNTER, M. E., Asst. Genl. Mgr., Covington, Va.

COVINGTON MACHINE CO.

MANUFACTURERS OF

Blast Furnace, Rolling Mill and Mining Machinery.

IRON BUILDINGS AND GENERAL STRUCTURAL IRON WORK.

Cars, Wheels and Axles, Forgings, Rods, Bolts, Brass and Iron Castings.

Sole Manufacturers of the MERRY PATENT PICKING BELT.

SPECIAL ATTENTION PAID TO REPAIRING.

COVINGTON, VA.

THE INGERSOLL MILLING MACHINE CO.

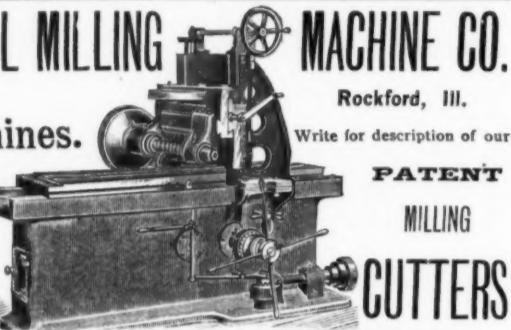
SLAB

Milling Machines.

+++

From 36 inches square
by 12 feet long.
To 22 inches square
by 5 feet long.

+++



Write for description of our

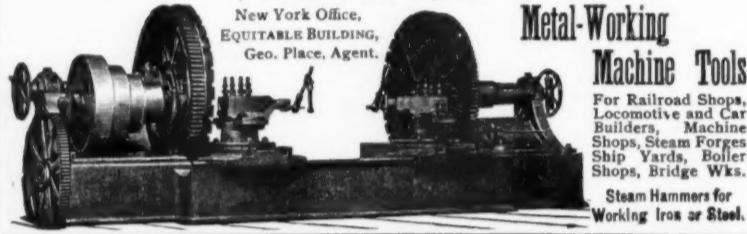
PATENT

MILLING

CUTTERS

BEMENT, MILES & CO.

PHILADELPHIA, PA.



BUILDERS OF

Metal-Working
Machine Tools

For Railroad Shops,
Locomotive and Car
Builders, Machine
Shops, Steam Forges
Ship Yards, Boiler
Shops, Bridge Wks.

Steam Hammers for
Working Iron or Steel.

BUILD and REPAIR YOUR MACHINERY

BY USING

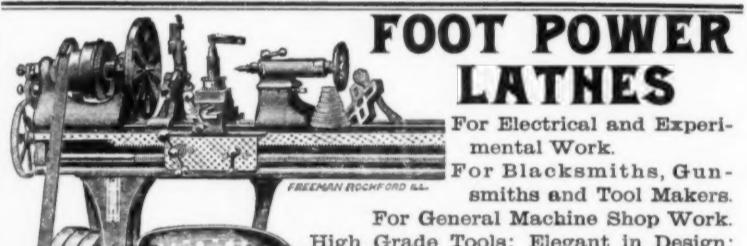
MACHINISTS' TOOLS

MANUFACTURED BY

DRAPER MACHINE TOOL CO.

(Successors to LATHE & MORSE TOOL CO.).

Worcester, Mass., U. S. A.



FOOT POWER LATHE

For Electrical and Experimental Work.

For Blacksmiths, Gunsmiths and Tool Makers.

For General Machine Shop Work.

High Grade Tools; Elegant in Design; Superior in Construction. The Best

Foot Power Lathes made, and quality considered, the cheapest. Send for Catalogue and Prices.

W. F. & JOHN BARNES CO., 221 Ruby St., Rockford, Ill.

MACHINE SHOP AND BLACKSMITH EQUIPMENTS

* * SPECIALTY * *

Engine Lathes, Chucks, Drill Presses, Shaping Machines, Power Hammers, Bolt and Nut Machinery, Portable Forges, &c. Pressure Blowers and Emery Grinding Machinery. Send for Catalogue of Machine Tools, stating exactly what is required so that prices may be quoted. Delivered your station if so desired.

W. E. DREW, Agent.

S. C. FORSAITH MACHINE CO., Machinists and General Machinery Dealers, Manchester, N. H.

SHAFTING.

Turned and Highly Polished Iron and Steel Shafting. Guaranteed round straight and true.

THE MOST PERFECT SHAFTING MADE.

The McKaig Iron & Steel Shafting Works,

CUMBERLAND, MD.

PRESSES, DIES and TOOLS
For Working Sheet Metal.
Fruit Can Dies and Tools,
Canners' Outfits, Squaring Shears, &c.

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

...

H. K. PORTER & CO., PITTSBURGH, PA., U. S. A.**Light Locomotives and Noiseless Motors**

All gauges of track for Passenger and Freight Service. Logging Railroads, Mines, Blast Furnaces, Steel Works, Coke Ovens, Contractors' Work and Plantations.

Photographs and illustrated catalogues on application. In writing mention MANUFACTURERS' RECORD.

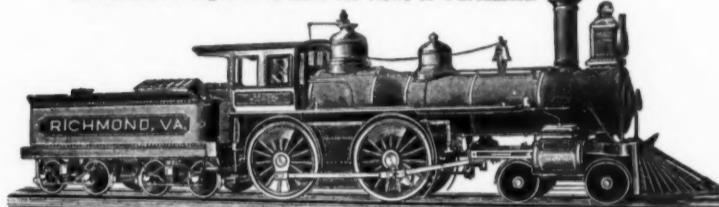
Memo.—All work STEEL FITTED and built to duplicate system. Extra parts kept in stock. We keep on hand, ready for immediate shipment, LOCOMOTIVES AND MOTORS OF SEVERAL SIZES, WIDE OR NARROW GAUGE.



Established in 1865. **RICHMOND LOCOMOTIVE & MACHINE WORKS, RICHMOND, VA.**

Builders of LOCOMOTIVES

To Standard Designs or to meet the views of Purchasers.



MOTORS FOR STREET OR SUBURBAN TRAFFIC AND MINE ENGINES.
CORRESPONDENCE SOLICITED.

STEEL RAILS**PENNSYLVANIA**

Standard Sections
Light Sections
Street Rails

Fish Plates,
Frogs, Switches

STEPHEN W. BALDWIN
SALES AGENT

CHAS. S. CLARK,
Sales Agent.

16 lbs. Full Size.

STEEL COMPANY

50 to 80 lbs. per yard
16 " 45 " " "
30 " 88 " " "
Bolts & Nuts,
and Crossings.

NO. 2 WALL STREET
NEW YORK N.Y.

BALDWIN LOCOMOTIVE WORKS

Established 1831.



Annual Capacity 1000.

LOCOMOTIVE ENGINES, adapted to every variety of service and built accurately to standard gauges and templates. LOCOMOTIVES FOR LOGGING Railroads and Sugar Estates.

COMPOUND LOCOMOTIVES.

STEAM TRAMWAY MOTORS, MINE LOCOMOTIVES, FURNACE LOCOMOTIVES.

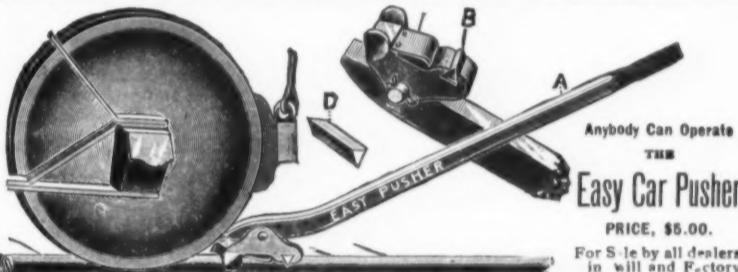
BURNHAM, WILLIAMS & CO., Proprietors, 500 N. Broad St., Philadelphia, Pa.

ESTABLISHED 1847. PHILADELPHIA.

A. WHITNEY & SONS,
Chilled Wheels for Engines and Cars,

Cast in the Whitney Contracting Chill and Warranted Smooth and Round Without Grinding.

STEEL-TIRED WHEELS WITH CAST-IRON CENTRES, SPOKE OR PLATE PATTERN.



Easy Car Pusher
PRICE, \$5.00.

For Sale by all dealers
in will and factory
Supplies.

Manufactured by **E. H. STAFFORD CO.**, Grand Rapids, Mich.

HOOPES & TOWNSEND,

Philadelphia, Pa.

MAKE RIVETS

in Solid Dies.

No. 9 x 1/4 in. to 1 1/2 x 42 in.

THE HOOPES & TOWNSEND CO., Wilmington, Del.

P. KENNEDY, President.

M. FLYNN, Vice-President.

BALTIMORE MALLEABLE IRON & STEEL CASTING CO.

A SUBSTITUTE FOR

STEEL AND WROUGHT FORGINGS

The Best Refined Air Furnace Iron Made.
Special attention will be given to Fine Steel Bicycle and Tool Work.

BALTIMORE, MD.

FROM 1-4 TO 15,000 POUNDS WEIGHT.

True 'o pattern, sound, solid, free from b'ow-holes and of unequalled strength. Stronger and more durable than iron forgings in any position or for any service whatever.

60,000 CRANK SHAFTS and **50,000 GEAR WHEELS** of this Steel now running prove this.

Cross-Heads, Rockers, Piston-Heads, &c., for Locomotives.

STEEL CASTINGS of every description.

Send for Circulars and prices to

CHESTER STEEL CASTINGS CO.

Works, Chester, Pa. Office, 407 Library St., Philadelphia, Pa.

WIRE ROPE

IRON AND STEEL WIRE OF ALL KINDS
TRENTON IRON CO.

NEW YORK OFFICE COOPER HEWITT & CO.
17 BURLING SLIP, WIRE ROPE TRAMWAYS &c.

THE AMERICAN IMPROVED ANTI-FRICTION METAL CO.

Manufacturers of the best metal for journal bearings of any kind—especially for Steamships, Railroad and Street Cars, Sugar Mills, Rolling Mills, Saw Mills, etc. Especially adapted to high speed journals. This metal is so adapted not to HEAT OR CUT the journals, and its lasting qualities make it superior to any other metal. Its excellence makes it the most economical metal.

It is Self Lubricating.

It is tougher and more durable than all other metals.

It is the best metal known where great pressure is required.

It runs with less friction than any other metal.

It will stand the highest rate of speed and will not heat or cut.

In general use everywhere and gives universal satisfaction.

Ice and Works, MOBILE ALA. New York Office, 11 Wall Street. Agencies in all the Principal Cities. WHEELANDS FOUNDRY & MACHINE WORKS, Chattanooga, Tenn.

**STEEL CASTINGS**

True 'o pattern, sound, solid, free from b'ow-holes and of unequalled strength. Stronger and more durable than iron forgings in any position or for any service whatever.

60,000 CRANK SHAFTS and **50,000 GEAR WHEELS** of this Steel now running prove this.

Cross-Heads, Rockers, Piston-Heads, &c., for Locomotives.

STEEL CASTINGS of every description.

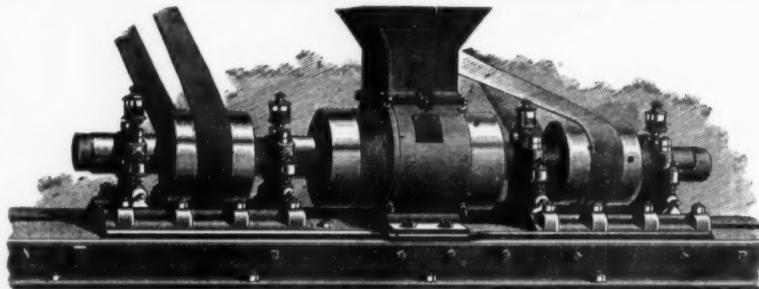
Send for Circulars and prices to

CHESTER STEEL CASTINGS CO.

Works, Chester, Pa. Office, 407 Library St., Philadelphia, Pa.

THE STURTEVANT MILL.

The only Crusher and Pulverizer combined for reducing ores, phosphate rock, cement and all hard and refractory material, developing an entirely new principle (rock grinding rock) thus reducing wear on machine to a minimum. Unequaled in capacity and economy. A large number in successful operation. Used and endorsed by the most prominent engineers and users of grinding machinery. Grinds from one



Also sole manufacturers of Patent Rock Emery Mill Stones. Superior to the best French Buhr Stones, requiring little dressing, and much more durable, emery being harder and more cutting. One pair Emery Stones at about same cost will outwear two pair Buhrs. The saving in dressing alone will more than pay first cost. Will fit any Buhr Mill Frame. Send for circulars and testimonials, and mention this paper.

to twenty tons per hour, according to fineness. Single machines in daily operation grinding 20 tons per hour magnetic iron ore, 100 barrels per hour cement, and 6 to 8 tons per hour phosphate rock to pass a 60-mesh sieve at a cost far below any known process. Will not wear out. Machines running daily for several years practically as good as new. Wearing parts renewed at slight cost.

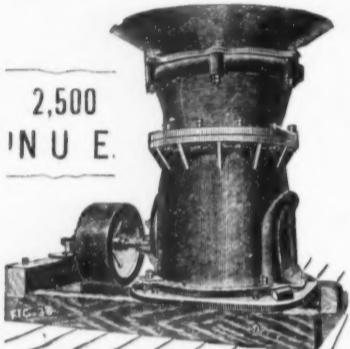
STURTEVANT MILL COMPANY,

No. 88 Mason Building, No. 70 Kilby Street,

Boston, Mass., U. S. A.

GATES ROCK AND ORE BREAKER. CARD DRY CONCENTRATOR

NUMBER SOLD IN 1891 EXCELS ALL FORMER RECORDS.



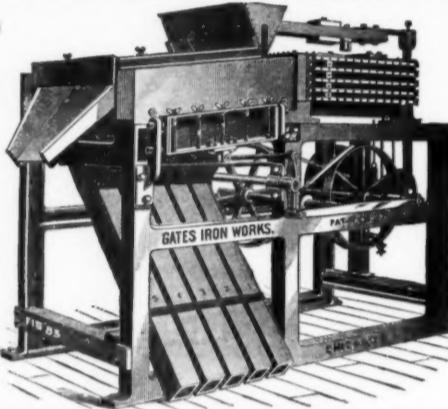
2,500
IN U. S.

We beg to announce the following specialties for 1892:

A NEW FINE CRUSHER TO SUPPLANT ROLLS,
A NEW DRY ORE CONCENTRATOR—THE CARD,
A NEW WET ORE CONCENTRATOR,

Improved Cornish Rolls, Simple and Effective Grinding Pans, Stamp Mills, Driers, All Mining Machinery.

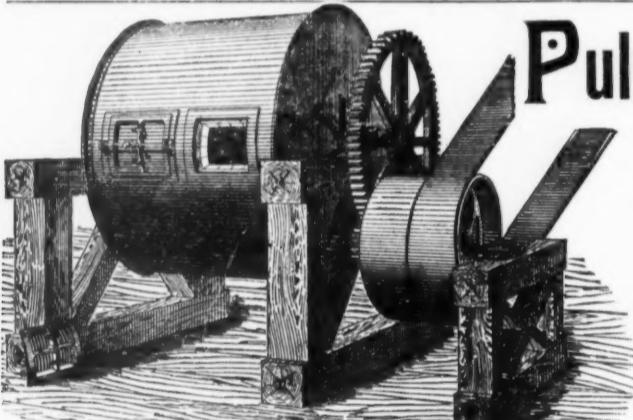
GATES IRON WORKS,
50 H. S. Clinton Street, Chicago.



Southern Equipment Co., Chattanooga.

New York—136 Liberty St. Boston—237 Franklin St.

London, Eng and—73 A Queen Victoria St.



Pulverizing Cylinder.

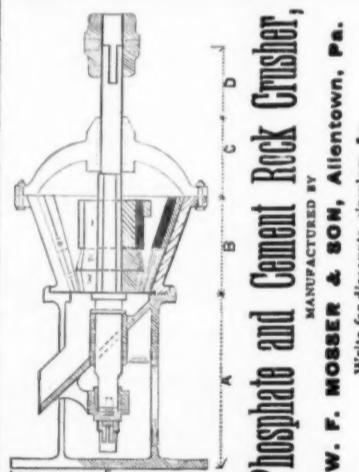
ALSING'S PATENT

Introduced of Late in the Cement Trade
with the Greatest Result.

The accompanying cut represents THE ONLY MILL IN THE WORLD that reduces the material to an impalpable powder and delivers the same as a uniform product.

NO BOLTING REQUIRED.

J. R. ALSING COMPANY, Incorporated, Patentees, Manufacturers and Agents, for Crushing, Grinding and Pulverizing Machinery,
60-62 NEW STREET, NEW YORK CITY.



W. F. MOSSER & SON, Allentown, Pa.
MANUFACTURED BY
Write for discounts, circulars, &c.

YOU WANT

MINING AND MILLING MACHINERY

FOR GOLD AND SILVER ORE

WE MAKE IT.

WE ALSO MAKE

Crushers, Rolls, Screens, Hoisting & Stationary Engines

Write to us for prices or send for our Catalogue or call on us. Our office and works are at No. 1 D. Street, Arlington, N. J., only 30 minutes from foot of Chambers Street, New York City, via Erie Railroad.

BECKETT FOUNDRY & MACHINE CO.

THE NAROD DRY PULVERIZER.

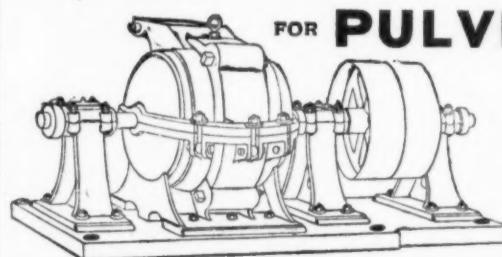
See large Advt. in last and next issue of this Paper.
American Ore Machinery Co., No. 1 Broadway, N. Y. City.

CYCLONE PULVERIZER.

FOR FINE GRINDING.
Rooms 234 & 235 Washington Bldg.,
No. 1 Broadway, New York City.

Frisbee Lucop Mills

FOR PULVERIZING



At half the cost of that by Buhr Stones. Used by leading Cement and Fertilizer Manufacturers. Finished Product. No Tailings. Capacity up to three tons per hour. Record of constant use for six years.

FRISBEE LUCOP MILL CO.
145 Broadway, New York.

DAVIDS' PATENT DISINTEGRATING MILL.

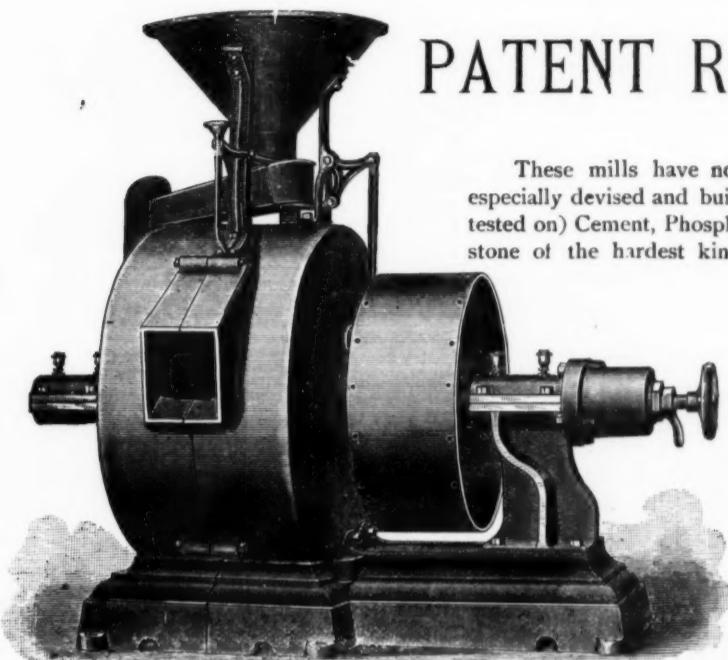
For Bones, Phosphates, Tankage, Ores, Clay, Fish, Scrap, Salt Cake &c. FERTILIZER MACHINERY, Mixers' Rolls, Breakers, &c., &c. MAKING RAILWAYS, CLAY TEMPERERS. Send for Catalogue.

JAMES MURRAY & SON, 102 to 108 York Street, Baltimore, Md.

SPROUT, WALDRON & CO.

Sole Manufacturers of VERTICAL MILLS using the STURTEVANT

PATENT ROCK EMERY MILL STONES.



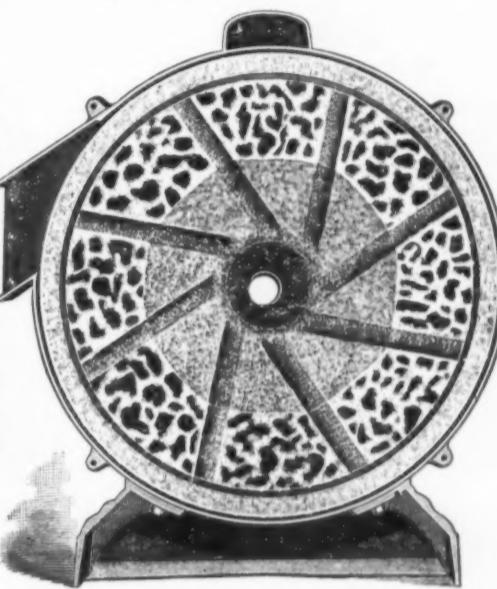
These mills have no equal for grinding. They are especially devised and built for (and have been thoroughly tested on) Cement, Phosphate Rock, Carbon, Flint, Lime-stone of the hardest kind, Nitrate of Soda and various kinds of Paint Rock.

We guarantee better results than can be obtained by any other mill.

NEW YORK, October 18, 1892.
GENTLEMEN.—The Mill for grinding Iron Oxides recently sent you on trial, is very satisfactory and we will keep it.

The most that we have been able to do with 36-inch Burr or Eosopus Mill has been 3,000 lbs. per day first grinding, and 1,500 lbs. per day second grinding of grinding. With your 36-inch Vertical Emery Mill we are able to grind 10,000 lbs. per day first grinding, and 7,000 lbs. per day second or finishing grinding, and at the same time get a better product than we have ever been able to before. We have also tried the Mill on other materials, and find that we get the same proportionate results.

Yours very truly,
H. W. JOHNS MFG. CO.,
F. J. JEWETT, Asst. Sup't,



FOR FULL PARTICULARS ADDRESS

SPROUT, WALDRON & CO., Muncy, Pa.

MANUFACTURERS OF THE WALDRON & SPROUT MILLS AND THE RING MILL MACHINERY.

THE NEW GRIFFIN MILL

Will Work Either Wet or Dry.

CAPACITY, from two to four tons per hour, to 60 m. sh. or finer.

First-Class Mechanical Construction
IN EVERY DETAIL.

Descriptive circulars and full information
furnished on application to

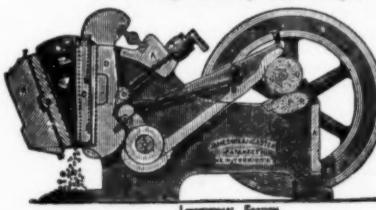
BRADLEY FERTILIZER CO.

Manufacturers and Gen Agents.

FARLOW BUILDING, 92 STATE STREET,
BOSTON, MASS.

The "LANCASTER" Rock Crushers and Grapples.

The Strongest, Simplest, Cheapest and the Most Powerful of all Breakers and Diggers.



Instantly adjustable to yield any desired uniform grades of product. Has the power only required and is less liable to breakage and less in first cost, and also in subsequent wear and tear, and less weight than any rival's breaker. For crushing rock for macadamizing and concrete purposes, and also for reducing ores, these breakers are specially efficient. The "Lancaster" Crushers are also made in "Sections" for easy transportation in mountainous regions. May be mounted on wheels, worked by hand, horse gear and steam or other power, and also fitted with Rotary Screens, Elevators and Conveyors. Correspondence and trial tests also solicited of the "Lancaster" Automatic Grapples, Engines, and hand, horse and steam power Hoisters.

Send for our "1892" Illustrated Catalogue, Price List and Testimonials. Particulars of the "Lancaster" Direct Steel Process sent on application.

JAMES H. LANCASTER, Patentee and Manufacturer, 141 Broadway, New York.

The PERFECT PULVERIZER.

THOROUGHLY TESTED and proved to be the most successful machine ever made for PULVERIZING all refractory substances, such as QUARTZ ORES of all kinds, PHOSPHATE ROCK, CARBON, FOUNDRY FACINGS, PLUMBAGO, PORTLAND AND ROCK CEMENTS, Etc.

Complete Within Itself.

DELIVERS A FINISHED PRODUCT.

No Auxiliary Apparatus Required.

Automatic Feeder
WITH EACH MILL.



The "LANCASTER"
Grapple.
Digs, raises and discharges
Mud, Clay, Coal, Ore, etc., by
hand, horse or steam power.

P. O. Box 3139.

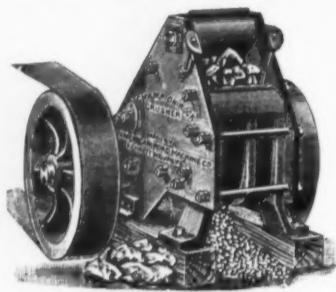
THE BROUGHTON DRY MIXER

For Hard Plaster, Paints, &c.
W. D. DUNNING,
Syracuse, N. Y.



FOR THE BEST DISINTEGRATING MILL
TO GRIND BONES, TANKAGE, CLAY,
ORES, COAL, PLASTER, PLASTER ROCK,
FISH SCRAP, SALT CAKE, GRAPHITES, &c.,
FERTILIZING MACHINERY, BREAKERS,
SCREENS, MIXERS AND DRYERS, corres-
pond with
STEDMAN'S FOUNDRY & MACH. WORKS,
AURORA, IND.

The Champion Steel Rock Crusher.

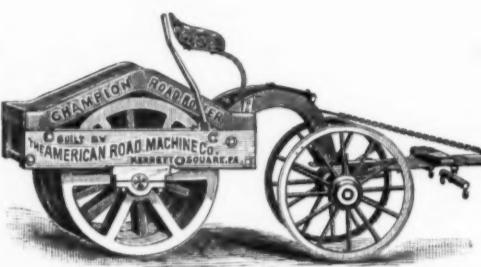


No more break downs.
Built to stand the racket.
Will do the work of hundreds of men with stone hammers.
Reduces the expense of rock crushing so that every public highway can be surfaced with macadam.

THE SOUTHERN EQUIPMENT COMPANY,
CHATTANOOGA, TENN.

WRITE FOR CIRCULARS, ADDRESS

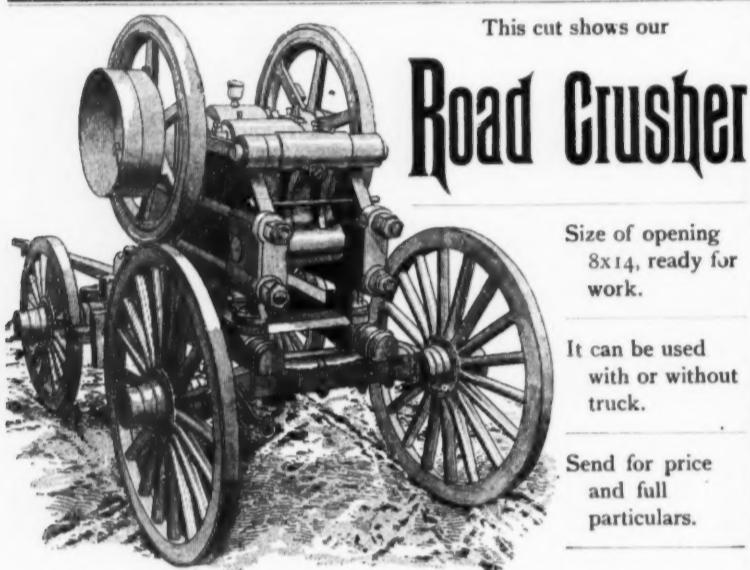
The Celebrated Champion Road Roller.



No stiff tongue.
The front truck saves the horses' necks.
Turns as easy as a wagon, and without disturbing the surface of the macadam.

AMERICAN ROAD MACHINE COMPANY,
KENNETT SQUARE, PA.

This cut shows our



Size of opening
8x14, ready for work.

It can be used with or without truck.

Send for price and full particulars.

UNION FOUNDRY & MACHINE WORKS,
ROCKAWAY, MORRIS COUNTY, N. J.

Cummer's Drying, Calcining & Pulverizing MACHINERY, APPARATUS and PROCESSES for

DRYING PHOSPHATE

Clay, Marl, Etc.

Rock and Pebbles, also separates same from clay and other impurities. Water not necessary. Capacity 10 to 20 tons per hour. Also, dries clay for Brick Making, Pottery, etc. as it comes from bank, for 5 cts. per ton. Also, nearly all kinds of very wet and sticky materials.

CALCINING PHOSPHATE

Gypsum, Etc.

Rock and Pebbles, at any temperature from 500° F. and higher, very cheaply and rapidly. Also, Gypsum, Rock, etc. Labor dispensed with. Material handled by machinery.

SEPARATING

All Dry Ground Minerals,
Dry Paints, Etc.

Rock to 80 mesh absolute, and finer. Also, separates ground Portland Cement, Water Lime, and nearly all dry pulverized minerals, at the rate of 10 to 20 tons per hour, with less than one H. P. Also, separates Ground Dry Paints to any fineness wanted.

FINE PULVERIZING

Dry Paints, Etc.

Of Phosphate Rock. For this and for Dry Paint Grind'ing we make decidedly the best machine. Has large capacity, is durable. No journals in machine or exposed to grit. Is a reliable, every-day machine.

"Dry Process"

PORTLAND CEMENT Works.

We will furnish plans for "Dry Process" Portland Cement Works, and all necessary machinery and apparatus for making same, to actual "bona fide" customers.

SEND SAMPLES

To Us

Of materials to be dried, calcined, separated or pulverized. Send quart samples of moist materials in sealed cans. If materials are to be pulverized or separated send small samples of crude and finished product. Express prepaid.

Manufactured for U. S. exclusively by

Sold exclusively by

FRONTIER IRON WORKS, Detroit, Mich. THE F. D. CUMMER SONS CO., 332-340 The Arcade, CLEVELAND, OHIO.



P. M. WALTON,
Machinist and Millwright
1023 Germantown Avenue,
PHILADELPHIA, PA.

Special attention given to all kinds of Machinery for handling Coal, Phosphate Rock, Ground Sand and all bulky material; also manufacturer of full line of Paint Machinery. Send for catalogue.

For Catalogue of the BEST AND MOST COMPLETE PULVERIZING PLANTS
WRITE TO RAYMOND BROS. IMPACT PULVERIZER CO., - CHICAGO, ILL.

SPRINGFIELD STEAM ROAD ROLLER

BEST on the MARKET.

PORTABLE
TAR
HEATING
TANK

For illustrated catalogue and description address

O. S. KELLY CO. SPRINGFIELD, O., U.S.A.

LUBROLEINE

The Oil that Saves
Most Power
Fuel and Money.

MAIN OFFICE AND SALESROOM,
WORKS: NEW YORK CITY.
NEWARK, N. J.
CHARLOTTE, N. C.
ATLANTA, GA.

213 SMITH'S WHARF, BALTIMORE, MD.

Send for descriptive pamphlet "LIGHT ON LUBRICATION."

LUBROLEINE OIL COMPANY,

Refiners of Petroleum Oils and their Products.

Established 1832 on Present Premises.

The
Best
is
Always
the
Cheapest



Therefore
Buy
Our
COLOPHINE,
or
Perfect Oils.

The above are our specialties in MACHINERY OILS, and are the Best Oils for the price manufactured. We can give you anything in the OIL LINE, any grade, at the very lowest prices. Correspondence solicited.

WM. C. ROBINSON & SON,

Manufacturers

OILS

Dealers

217 South Street, BALTIMORE, MD.

Rock Drilling and Air Compressing
MACHINERY
 FOR
 TUNNELS, QUARRIES, MINES, RAILROADS,
 And wherever Ore and Rock are to be Drilled and Blasted.

RAND DRILL CO. 23 Park Place, NEW YORK.

Branch Offices—Monadnock Building, Chicago; Ishpeming, Mich.; 1316 18th Street, Denver; Sherbrooke P. O., Canada; Apartado 830, Mexico City.

BUY THE BEST.

BULLOCK'S DIAMOND PROSPECTING CORE DRILLS

FOR SURFACE OR UNDERGROUND PROSPECTING.
 The Only Drills that will give an Accurate Record of Every Strata Penetrated.
 ALL DRILLS SOLD WITHOUT RESTRICTIONS.

Lane's Band Friction Hoisting Machinery
 Drums from 2 Feet to 25 Feet in Diameter.

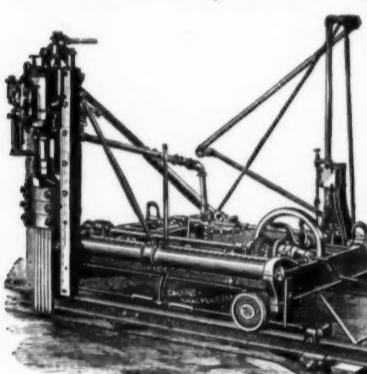
IMPROVED CORLISS ENGINES,
 Slide Valve and Straight Line Engines,
 Eclipse Rock Drills, Air Compressors,
 Channeling and Quarrying Machines.

M. C. BULLOCK MFG. CO.
 No. 41 S. Canal Street,
 Write for what you want. CHICAGO.
 Cable Address: BULLOCK, CHICAGO.
 Denver Branch, 1310 18th Street, R. D. Hobart, Manager.



Diamond Prospecting Drill.

Sullivan Quarrying Machinery



SULLIVAN STEEL GANG CHANNELER.
 Sullivan Channelers and Gadders,
 Rock Drills and Quarrying Machinery,
 Sullivan Prospecting Core Drills,
 Stanley Entry Driving Machine,
 Mitchell Automatic Coal Tipple.
 General Mining Machinery.

SULLIVAN MACHINERY CO.
 Successors to DIAMOND PROSPECTING CO.
 MANUFACTURERS AND DEALERS,
 15 and 17 North Clinton Street,
 CHICAGO, ILLINOIS.



CORE DRILLS—HAND POWER.

The accompanying cut represents the
HILL SLIDING BLIND,
 which is the leading Sliding Blind of the day
 and which we guarantee to give entire satisfaction.
 We are also manufacturers of the
PERFECTION Sliding WINDOW SCREENS
 And **SCREEN DOORS**,
 which, as the name implies, are "perfection"
 and fine interior finish of all kinds.
 We make a specialty of STAIRS, MANTELS,
 VENEERED DOORS, &c.
 Estimates made from plans without charge.
 Illustrated catalogues, price lists, etc., upon
 application.

THE MONROE MFG. CO.,
 LIMA OHIO.

THE JOHN F. BYERS MACHINE CO.

RAVENNA, OHIO



Portable Steam Hoisting Machinery

OUR OWN PATENTS, Single or Double Cylinder Engines, Sliding Pinion or Friction Single or Double Drum, for HEAVY MASONRY, BRIDGE AND BUILDING CONTRACTORS, PILE DRIVING, PHOSPHATE MINING and any work where a light-weight powerful machine is desirable, it has no superior.

Southern Sales Agents: { C. B. SMITH, Jacksonville, Fla.
 SMITH COUPRINEY CO., Richmond, Va.
 JAMES & CO., Chattanooga, Tenn.

WRITE FOR CIRCULARS AND PRICE-LIST.

MINING AND DUMP CARS

of all Sizes and Descriptions.
 PATENT TRAM WHEELS.
 GEO. PEACOCK Manufacturer, Selma, Ala. Catalogues free.

Contractors' SUPPLIES.

Dump Cars, Flat Cars, Light Locomotives, Hoisting Engines, Horse-Power Drums, Derrick Fittings, Winches, Boilers, &c.

Send for Illustrated Catalogue and Prices.

Manufactured by RYAN-MCDONALD MFG. CO. 44 South Street, BALTIMORE, MD.



BACON WINDING ENGINES,
 FURNACE HOISTS,
 MINE HOISTS.
 (With or Without Boilers.)
 "MINING PLANTS," Concentrating Works and Dredging Machinery Furnished Complete.
 ROCK BREAKERS AND ROLLS.
 ORE WASHERS.



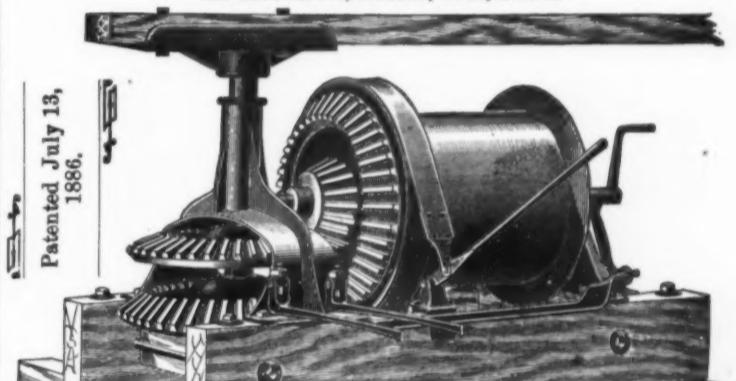
COPELAND & BACON

62 S. Canal Street, Chicago, Ill. 85 Liberty Street, New York.

THE CONTRACTORS' PLANT MANFG. CO.

129 Erie Street, Buffalo, N. Y., U. S. A.

Patented July 15, 1886.



AN IMPROVED HORSE-POWER HOISTING MACHINE, with a combination of fast and slow speed. With fast speed a horse will lift from 1,000 to 1,500 pounds on a single line at a speed of 60 feet per minute, and with a single block 3,000 pounds 40 feet per minute. With the slow speed a weight of $1\frac{1}{2}$ tons with a single line, and with a single block 3 tons; with two single blocks 5 tons; with double and single blocks 7 tons. The speed single line 30 feet per minute, with single block 15 feet per minute. In this combination of gears the user has the advantage of two machines embraced in one, with a saving of 25 per cent. in cost and 50 per cent. in weight. SIMPLE, DOES NOT GET OUT OF ORDER. Write for illustrated catalogue of

Horse-Power Hoisting Machinery

FOR BRIDGE BUILDERS, CONTRACTORS, QUARRYMEN, MINERAL AND COAL MINERS, MASONS AND BUILDERS.

Mention this paper when you write.



HOWARD HYDRAULIC CEMENT.

For information and prices write to

HOWARD HYDRAULIC CEMENT CO., Chattanooga, Tenn.

CLIMAX.

SURPASSES KEENE'S CEMENT AND MUCH CHEAPER.

THE PERFECTION OF ALL PLASTERING MATERIALS.

WATER PROOF, FIRE PROOF, VERMIN PROOF, FROST PROOF.

Nature's Own Product.

500 Per cent. more Tensile Strength and 200 per cent. harder than Lime and Hair.

LONE STAR PLASTER COMPANY.

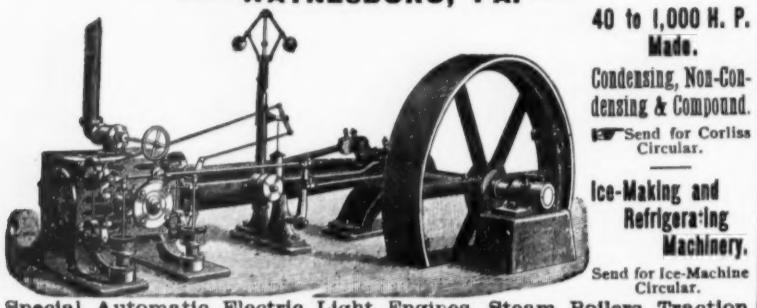
QUANAH, TEXAS.

STONE WORKING MACHINERY

LINCOLN IRON WORKS, RUTLAND, VT.

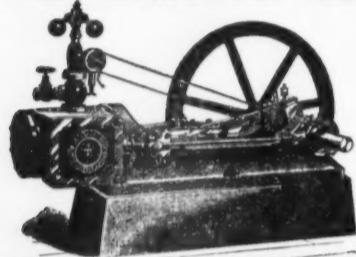


ECLIPSE CORLISS ENGINES.
Frick Company, Engineers, Builders,
 WAYNESBORO, PA.



Special Automatic Electric Light Engines, Steam Boilers, Traction and Portable Engines. Saw Mills. Send for our General Catalogue.

FOR THE LOWEST PRICED FIRST-CLASS
ENGINES AND BOILERS

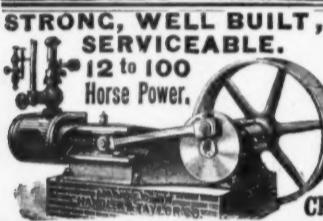


GEO. W. TIFFT, SONS & CO.
 BUFFALO, N. Y.

5 to 500 H. P. Special Stock Sizes 5 to 50 H. P.
 BOTH STATIONARY AND SEMI-PORTABLE.

A few good Second-Hand Engines and Boilers are for sale at an astonishingly low figure. Must be sold to make room for stock. Correspondence solicited. Mention this paper.

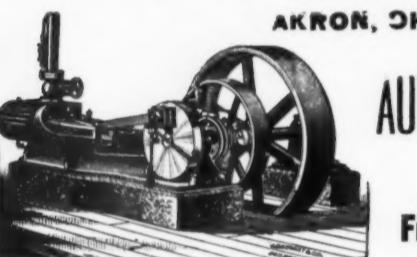
GREER MACHINERY CO.
 Knoxville, Tenn.
 Wholesale Automatic, Coal and Hoisting
ENGINES
 Stationary and Portable
 Engines and Boilers, Saw and Grist Mills,
 Woodworking Machinery, &c.



STEAM ENGINES
 ADAPTED TO HEAVY, CONTINUOUS WORK.
 EVERY ENGINE TESTED UNDER FULL LOAD.
 SUITABLE
TUBULAR FIREBOX BOILERS on hand for immediate delivery.
 FOR DESCRIPTIVE CATALOGUE ADDRESS
 CHANDLER & TAYLOR CO., INDIANAPOLIS, IND.

Webster, Camp & Lane Machine Company,

AKRON, OHIO.



BUILDERS OF

AUTOMATIC ENGINES,

— BOILERS, —

Friction Clutch Pulleys,

COMPLETE POWER PLANTS.

Write for Circulars.

W. ROGERS, Pres. A. H. GEBERT, Secy. E. E. CLINE, Supt.

THE CLINE
ENGINE and MACHINE CO.

Manufacturers of Upright and Horizontal, Stationary and Marine Engines and Boilers of all sizes. Hoisting Machinery with Double and Single Engine and Drum. Power Pottery Wheels and Special Machinery built to order.

Works on P. A. & W. near Junction with B. & O.
PLYMOUTH, OHIO.



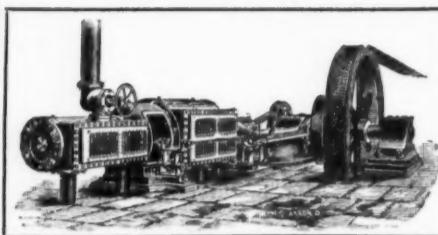
THE RAVENNA BOILER WORKS,
 MANUFACTURERS OF ALL KINDS OF
Steam Boilers and Tanks,
 Stills and Agitators, Plate and Sheet Iron Work of Every Description.
RAVENNA, OHIO.

Write for Prices.

WILLIAM TOD & CO.

YOUNGSTOWN, OHIO.

The Porter-Hamilton Engine.
 Single, Compound and Condensing.



BLOWING ENGINES.

Hydraulic Cranes
 and Accumulators.

Heavy Special Machinery.

STEAM ENGINES AND BOILERS

If you want the very best engine there is made, go direct to the builders, 30 Cortlandt street, New York, and get a NEW YORK SAFETY STEAM POWER CO. VERTICAL ENGINE for 2 to 20 horse power, or a HORIZONTAL AUTOMATIC ENGINE for 20 to 250 horse power. These Engines have the fewest possible wearing parts, all of which are in sight and easily accessible, which is what every intelligent engineer wants.

6,000 ENGINES IN USE.



Send for price list.

N. Y. SAFETY STEAM POWER CO.

Also, 64 South Canal St., Chicago.

30 Cortlandt Street, New York.

The BUCKEYE AUTOMATIC CUT-OFF ENGINES

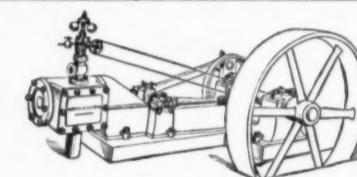
SLOW SPEED, MEDIUM SPEED,
 AND HIGH-SPEED ENGINES.



Simple, Compound and Triple Expansion
 Engines, High-Pressure Boilers.
 Complete Steam Power Plants of Highest
 Attainable Efficiency.

Address BUCKEYE ENGINE CO., Salem, Ohio.

Or Sales Agents—ROBINSON CARY CO., St. Paul, Minn.; N. W. ROBINSON, 97 Washington St., Chicago, Ills.; A. M. MORSE, 511 Commercial Bldg., St. Louis, Mo.; JAS. CREIGHTON, 635 1st St., Louisville, Ky.; CHATTANOOGA SAW WORKS, Chattanooga, Tenn.; No. 18 Telephone Bldg., 18 Courtland St., N. Y.



**Slide-Valve
 Steam Engines,**

for heavy and continuous duty are
 made as a specialty by

Houston, Stanwood & Gamble,
 P. O. Box 821. CINCINNATI, O.

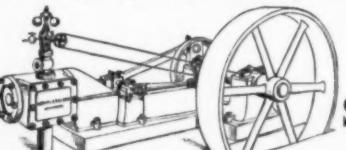
Generous.

Write for "Engineer's Consulting Book"
 of value to all owners and Steam users.

**MACHINERY WOOD AND IRON
 WORKING.**

ENGINES, BOILERS, Etc.

Supplies Generally.



LEATHER, RUBBER AND COTTON BELTING

A Specialty. Write for Prices.

SMITH-COURTNEY CO.
 RICHMOND, V.A.

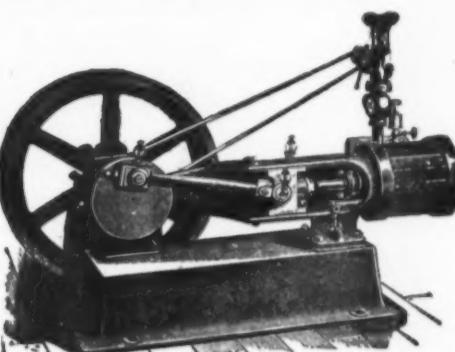
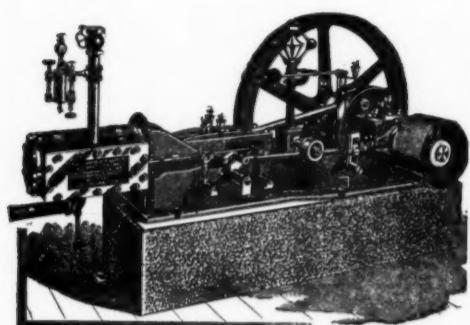
336, 338, 340, 342
NORTH ST.

The S. D. WARFIELD CO.

BALTIMORE,
MD.

SUCCESSORS TO

THE WARFIELD MFG. CO.



Complete Steam Plants

DYNAMOS AND

Complete Electric Light

AND RAILROAD PLANTS.

THE WARFIELD-PILLINGS AUTOMATIC ENGINE.

Class A.—The Warfield-Pillings Automatic Engine. A high-grade Engine (for high or medium speed) for electric light and other purposes.

Class B.—The Warfield Throttling Governor Engine—Horizontal and Vertical.

OUR MACHINERY IS CLASSED AND CATALOGUED AS FOLLOWS:

Class C.—Steam Boilers—Stationary Tubular, Upright Tubular. Class D.—Shafts, Hangers, Pulleys, Couplings, etc.

Class E.—Fruit, Vegetable and Oyster Packers' Machinery—most complete line on the market.

Class F.—Can-Making and Sheet-Metal Machinery.

Class G.—The Warfield-Pillings Patent Water Motor, Ceiling Columns and Exhaust Fans, complete Ventilating Apparatus, Patent Electric Motors.

ANY OF THE ABOVE CATALOGUES MAILED UPON APPLICATION.

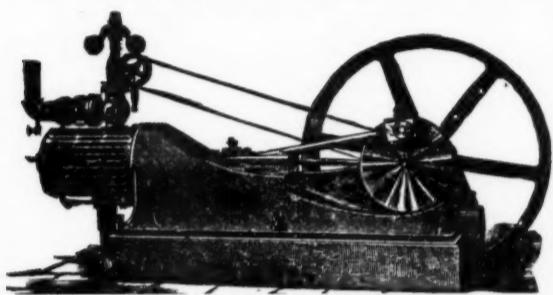
TALBOTT & SONS, RICHMOND, VA.

MANUFACTURERS OF

Engines and Boilers,

SAW, CORN AND WHEAT MILLS,

ROPE FEED for SAW MILLS, TIMBER QUAGES, graded by 1-16 of an inch. Shafting, Hangers and Pulleys,

Cotton-Seed Oil Mill Machinery,
MODERN COTTON GINNORIES.ESTIMATES AND CONTRACTS MADE FOR COMPLETE OUTFITS,
Embracing the Latest and Best Improvement.

Globe Machine Works

MANUFACTURERS OF

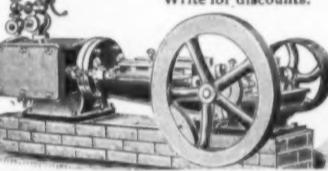
CENTER CRANK ENGINES

4, 5, 6, 8 and 10 Horse-power.

Best made. Lowest prices. Work guaranteed. Furnished with or without boiler. Send for prices and description.

4 horse-power,	-\$2.50
5 " "	58.00
6 " "	97.50
8 " "	110.00
10 " "	125.00

Write for discounts.



187-189 W. Second St., Cincinnati, O.

You must know
BY A GLANCE AT THIS
WE STAND ON TOP
INAUTOMATIC
SUPERIOR REGULATION
THE CHEAPEST AND THE BEST ENGINES
CLOSEST ECONOMY
SEND FOR DESCRIPTIVE CATALOGUE
VALLEY IRON WORKS, WILLIAMSPORT PENN, U.S.A.

FOR FIRST-CLASS BOILERS,

Erie and Atlas Engines, Tanks, Stacks, Tubes, Gins, Mills, Injectors, Shafting, Pulleys, Belting and Fittings.

COMPLETE MILL, ENGINE AND GIN OUTFITS

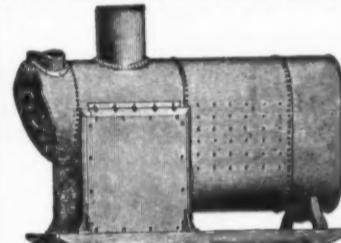
At Bottom Prices.

Don't fail to write us before you buy.

Address

GEO. R. LOMBARD & CO., Augusta, Ga.

LIDGERWOOD HOISTING ENGINES.



Boilers, Engines and Saw Mills, Tobacco Machinery, Improved Greene Engine, Otto Silent Gas Engines.

H. P. EDMOND,

1445 East Main Street, RICHMOND, VA.

The Tudor Boiler Manufacturing Co.

Steam Boiler and Tank Makers

OFFICE, 242 E. Pearl St. (opp. Pittab'g, Cincinnati & St. Louis Ry.), CINCINNATI, O.

SECOND-HAND BOILERS ALWAYS ON HAND

STATIONARY MARINE



Eagle Boiler Works

DAN SHEA & CO., Prop's.

Boiler Makers and Sheet-Iron Workers.

REPAIRING PROMPTLY DONE.

MEMPHIS, TENN.

SKINNER ENGINE CO. ERIE, PA.

Center or Automatic or Side Throttling ENGINES

FOR NEW FEATURES SEE NEW CATALOGUE.



MORTON, REED & CO., AGENTS, BALTIMORE, MD.

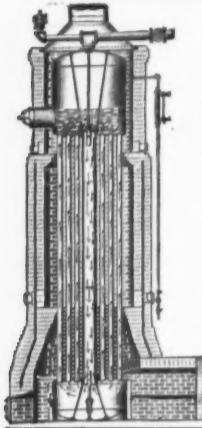
AWARDED THE GRAND PRIZE AT LATE PARIS EXPOSITION.

ENTERPRISE BOILER COMPANY, YOUNGSTOWN, OHIO.

Manufacturers of
Boilers and Tanks, Sheet Iron and Plate Work
of all descriptions.

HIGH GRADE AUTOMATIC CUT-OFF ENGINES. SIMPLE, TANDEM AND CROSS COMPOUNDS
No other engine has a perfectly balanced valve. **OUR GUARANTEE. WHO DARE MEET IT?**
The engine shall not run one revolution slower when fully loaded than when running empty, and a reduction of boiler pressure from the greatest to that necessary to do the work, will not reduce the speed of engine one revolution. Any engine failing to meet this guarantee becomes the property of the purchaser upon payment of one dollar. Send for Catalogue.
Branch Offices: 141 Liberty St., New York, N.Y.; 1412 Washington Ave., St. Louis, Mo. **J. H. McEWEN MFG. CO.** RIDGWAY, PA.

THE AULTMAN & TAYLOR MACHINERY CO.



MANSFIELD, OHIO, U. S. A.

SOLE BUILDERS OF THE

COOK PATENT

Water Tube Boiler

The Only Perfect Waste-Heat Boiler.

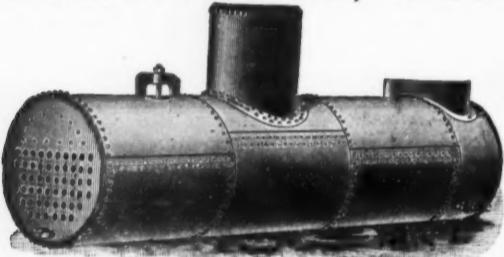
No incrustation. Generates the greatest amount steam with least amount of heat. Repairs reduced to a minimum. Can be used equally as well for direct firing or with natural gas.

We are also Builders of

HORIZONTAL, TUBULAR AND FLUE BOILERS, LOCOMOTIVE, FIRE BOX and all Other Styles of BOILERS, OIL TANKS and WATER STAND PIPES.

Estimates furnished promptly on receipt of specifications.

STRUTHERS, WELLS & CO.



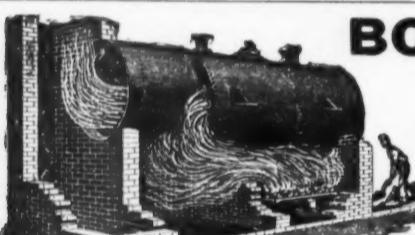
MANUFACTURERS OF

Engines & Boilers

Shafting, Pulleys, Hangers, Castings, Etc.

Full Tannery Outfits.

WARREN, PA.



BOILERS TRIPLE DRAUGHT

The Improved TUBULAR

BUILT BY THE

Holyoke Steam Boiler Works HOLYOKE, MASS.

Write for Prices. Address

T. H. SEARS, Manager.

BOILERS

With Rivet Holes Drill'd After Plates are Bent and in Position, Tanks and Sheet Iron Work, Engines, Cotton Gins and Presses, Machinery for Fertilizer Works and Phosphate Washers, &c.

VALK & MURDOCH IRON WORKS, Charleston, S. C.

DO YOU USE STEAM?

By using our Sectional Pipe Coverings you can

CORRESPONDENCE SOLICITED.

SAVE FUEL.

H. F. WATSON CO., ERIE, PA.

CHICAGO.

NEW YORK.

NASHVILLE, TENN.

See
THOSE HOLES?
That's the IDEA!



BALDWIN VACUUM BOILER TUBE CLEANER.

No Steam in the Tube. No Soot in Boiler Room. THE OLIVER P. CLAY CO., Cleveland, O.

Subscribe to the Manufacturers' Record.

Write us for information about our

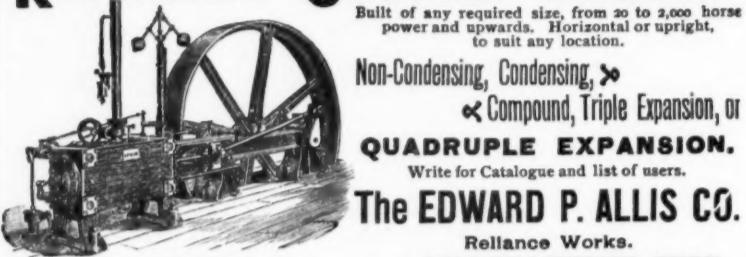
Automatic Engines
Hoisting Engines.
Air Compressors.
Mine Pumps
and Machinery.

ENGINES

For all purposes; it might pay you

MORRIS MACHINE & IRON CO., Dover, N.J.

REYNOLDS · CORLISS · ENGINE.



Built of any required size, from 20 to 2,000 horse power and upwards. Horizontal or upright, to suit any location.

Non-Condensing, Condensing, &
Compound, Triple Expansion, or

QUADRUPLE EXPANSION.

Write for Catalogue and list of users.

The EDWARD P. ALLIS CO.

Reliance Works.

MILWAUKEE, WIS.

BASS FOUNDRY AND MACHINE WORKS.

FT. WAYNE IND.

CORLISS ENGINES.

COMPOUND,
NON-CONDENSING AND
CONDENSING
30 H.P. TO 2000 H.P.
BOILERS & COMPLETE
STEAM POWER OUTFITS.

STEAM BOILERS! STEAM BOILERS!

TANKS, STILLS.

We manufacture the highest grade of Steam Boilers of all kinds. Buy where you can get the best values for your money.

THE BOLLEY & F'NLEY IRON WORKS, Lima, Ohio

Operated entirely by one handle.

BUFFALO AUTOMATIC INJECTOR

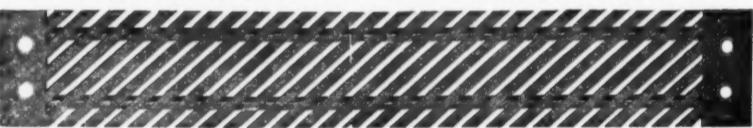
A GRADING INJECTOR.

Construction and operation is such that water supply is always in proportion to supply of steam admitted and can be graded to feed continuously with steam from 20 to 140 pounds. Works perfectly whether lifting or taking supply from city pressure. Operated entirely by one handle, both in stopping and starting and grading supply of steam and water.

EAGLE EJECTORS, DUPLEX FLUE SCRAPERS, FELTHOUSEN GAUGE COCKS, IMPROVED GLASS OIL CUPS and LUBRICATORS, CYLINDER OIL PUMPS, COMPRESSION GREASE CUPS, Etc. Send for Catalogue. Mention this Paper.

SHERWOOD MFG. CO., Buffalo, N. Y.

A FURNACE GRATE BAR



THAT DOESN'T REQUIRE A BLOWER TO SECURE A DRAUGHT.

IT IS THE

KELLY GRATE,

And for DURABILITY, PERFECT FUEL COMBUSTION and SUPERIOR STEAMING QUALITIES IT HAS NO EQUAL. IT WILL BURN HARDWOOD, PINE, HEMLOCK or SHINGLED SAWDUST, whether from Circular or Band Saws, with equal success. It will NOT WARP and will OUTWEAR TWO COMMON GRATES. When your plant requires Grates again DON'T be content with one that is "good enough," but use the same number of DOLLARS and secure the BEST that is, THE KELLY GRATE.

Invest a stamp in writing us for descriptive circular. We will return it, and tell you about our SHAKER GRATE, the only one of its kind made in the United States or any other place.

GIVE US A CHANCE TO BE OF USE TO YOU.

KELLY BROS., Iron Founders, GOSHEN, IND.

GLENFIELD'S BOILER CLEANSING FLUID.

It Preserves Boilers, Lessens the Risk of Explosions and Saves Fuel.

A Scale Exterminator and Iron Preserver for marine and land purposes. Removes and prevents incrustation of salt and fresh water. Eliminates all deleterious matter. Prevents pitting and priming. Scientific tests and practical use command it.

Used also in Breweries and Distilleries, and acts as a strong disinfectant. It has been used for more than thirty years by all the large Atlantic Steamship Lines and great Railways of England.

KERHANN & CO., 2 S. Holliday St., Baltimore, Md., Sole Agents for U. S.



Lime Extracting HEATER AND FILTER Combined.

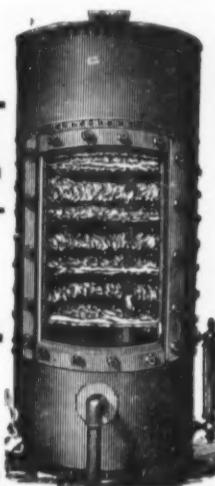
The Only Lime Extracting Heater That Will Prevent Scale in Steam Boilers.

Removing all impurities from the water before it enters the boiler.

Thoroughly Tested.

Over 3,000 of Them in Daily Use.

This cut is a fac-simile of the appearance of the shelves of a No. 5 Heater at work on ordinary lime water, when the door was removed after the Heater had been running two weeks. 



STILWELL & BIERCE MFG. CO., DAYTON, O.

STRUTHERS, WELLS & CO.

— WARREN, PA. —

ENGINES AND BOILERS

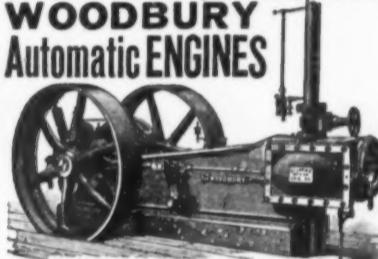
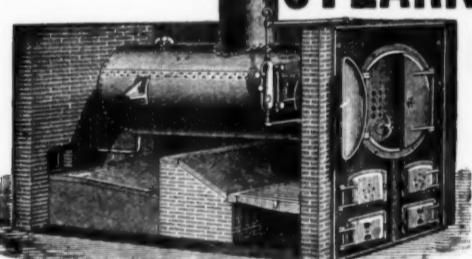
Fleshing Machines, Hide Mills, Leather Rollers and
General Tannery Machinery.

STEARNS MANUFACTURING CO. Office and Works, **ERIE, PA.**
COMPLETE POWER PLANTS FOR **WOODBURY**
ELECTRIC LIGHTING, AUTOMATIC ENGINES
STREET RAILWAY
and MANUFACTURING PURPOSES.

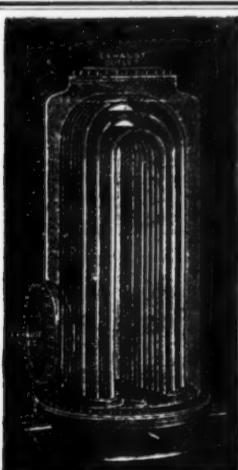
BRANCH OFFICES:
NEW YORK, - 136 Lib'ry St.
PHILADELPHIA, - 944 Drexel Building.
CHICAGO, - 1120 The Rookery.
SAN FRANCISCO, - 29 and 31 Spear St.

AGENCIES: ST. LOUIS—M. P. Johnston Machinery Co., 715 and 717 N. 2d St.
MINNEAPOLIS, MINN.—T. M. Maguire, 23 Syndicate Block.

BOILERS OF ANY SIZE FOR ANY DUTY.



SIMPLE AND COMPOUND CONDENSING OR NON-CONDENSING.



The "Advance" Feed-Water Heater.

Heats the Feed-Water to the Boiling Point (210 or 213 Degrees) with Exhaust Steam.

OF NEAT DESIGN AND WORKMANLIKE CONSTRUCTION.

The Feed-Water Passes Through U Shaped Seamless Drawn Brass Tubes.

PRICES VERY LOW.

I. B. DAVIS & SON, - Makers, - Hartford, Connecticut.

FOR SIZES, PRICES, ETC., ADDRESS

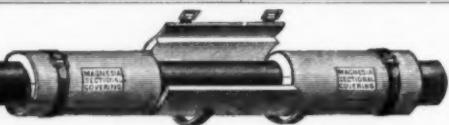
JAMES BERRYMAN, M. E., Genl. Manager,

No. 125 N. Fourth Street, Philadelphia, Pa.

BUFFALO SCALE COMPANY. BUFFALO, N. Y.
SCALES OF ALL KINDS.



Absolutely Fire-Proof.



MAGNESIA SECTIONAL COVERING.

Endorsed by the Board of Underwriters, Leading Architects, Consulting and Supervising Engineers.
Recommended by a Board of Examination of the Government of the United States as Superior to Standard Hair Felt.
The Best Non-Heat-Conducting Steam Pipe and Steam-Boiler Covering in existence.
Approved by the Bureau of Steam Engineering, U. S. N.

CORRESPONDENCE SOLICITED.



QUOTATIONS GIVEN.

Selling Agents.

S. C. Nightingale & Childs, Boston, 134 Pearl St.
Robert A. Keasbey, New York, 58 Warren St.
Macan & Co., Philadelphia, 51 Beach St.
Wallace & Bros., Baltimore, 434 E. Pratt St.
Wm. B. Morgan, Washington, Room 19, Builders' Exchange.
Alfred C. Kemper, Chicago, 208 Lake St.
Delbert Eng'g Co., New Orleans, 23 Union St.
Symmes & Co., Memphis, 192 Front St.

THE KEASBEY & MATTISON CO.

(Successors to the Magnesia Sectional Covering Co.)

AMBLER, PA.

Cincinnati Office, Corner Pearl and Eggleston Avenue.

Selling Agents.

W. W. Hite & Co., Louisville, 176 Fourth St.
F. Boecler, St. Louis, 108 Walnut St.
S. P. Conkling, Detroit, 51 Woodbridge St., East.
C. W. Badgley & Co., Denver, 18th & Market Sts.
Utah & Montana Machinery Co., Salt Lake City, 259 S. Main St.
R. W. James, Butte City, Mont.
Wm. Slater & Co., Montreal, 44 Foundling St.

Cincinnati Office, Corner Pearl and Eggleston Avenue.

WORTHINGTON STEAM PUMPS, CONDENSERS AND WATER METERS.

HENRY R. WORTHINGTON, - - - NEW YORK.

BOSTON,

PHILADELPHIA,

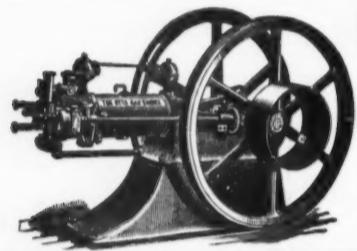
CHICAGO,

ST. LOUIS,

DENVER.

For Sale by THOS. K. CAREY & BROS., 26 LIGHT STREET, BALTIMORE.

E. V. White & Co., Norfolk, Va. Smith-Courtney Co., Richmond, Va. Chas. M. Whitlock, Wilmington, N. C. Algee Stevens Co., Atlanta, Ga. M. Schwartz & Co., New Orleans, La.
F. W. Heitman & Co., Houston, Texas. Forsberg & Murray, Washington, D. C. Livermore Foundry & Machine Co., Memphis, Tenn.
Mecklenburg Iron Works, Charlotte, N. C. Nashville Machine Co., Nashville, Tenn.



Over 33,000 in use. OTTO GAS ENGINE

20 to 70 per cent. less Gas Consumption than ANY OTHER ENGINE.

Working Without Boiler, Steam, Coal, Ashes or Attendance.

Started Instantly by a Match It gives full power immediately. When Stopped all Expense Ceases.

FOR COAL GAS, GASOLINE, NATURAL GAS, PRODUCER GAS.

No explosions, no fires nor cinders, no gauges, no pumps, no engineer or other attendant while running. Recommended by insurance companies.

SURPASSED IN EVERY RESPECT for hoisting in warehouses, printing, ventilating, running small shops, &c. Sizes, $\frac{1}{2}$ to 100 Horse-Power.
Branch Office, 151 Monroe St., Chicago, Ill. OTTO GAS ENGINE WORKS, Schleicher, Schumm & Co. 330 AND WALNUT STS. PHILADELPHIA, PA.

SCHEMES for the Erection of NEW COTTON MILLS will receive far better consideration if it is known that they are to be Equipped with HOPEDALE TWISTERS, WARPERS, and SPOOLERS, and RABETH 49D SPINDLES.

GEO. DRAPER & SONS, Hopedale, Mass.

Shafting, Hangers and Pulleys { For Mills and Factories of every description.

Flour and Corn Mill Outfits Complete. { Highest Product

Over 1,000 of our Roller Mills in use.

Over 5,000 of our Portable Grist Mills in use.

Guaranteed.



We offer a Complete Mill and Sheller for \$115.00

Adapted to any kind of power. A boy can run and keep it in order.

NORDYKE & MARMON CO.,

85 YORK STREET,

INDIANAPOLIS, IND.

Write for pamphlet,
"Mills and Milling."

Correspondence Solicited.



Trustees for the United States:

OLIVER W. PEABODY, Esq., KIDDER, PEABODY & Co., Boston.
CHAUNCEY M. DEPEW, Esq., Pres. N. Y. Cen. and H. R. R. Co., New York.
SAMUEL SLOAN, Esq., Pres. Del., Lacka, and West. R. R. Co., New York.
WM. A. FRENCH, Esq., Pres. Mass. National Bank.
ABRAHAM FRENCH Co., Boston.
HON. JOHN LOWELL, Boston.

ENDICOTT & MACOMBER, Managers for the United States,

AGENTS — SAMUEL APPLETON, 28 Central St., Boston; EDMUND DWIGHT, JR., 51 Cedar St., N. Y.; Middle Department—416-420 Walnut St., Philadelphia, Pa.; W. A. L. LAUGHTON, Manager; JOHN M. ASH, JR., Gen. Agt.; TATHNALL PAULDING, Resident Advisor; Maryland Department—LAWFORD & MCKIM, General Ag'ts for Maryland and the District of Columbia; 29 S. Holliday St., Baltimore; GEO. A. GILBERT, 226-228 LaSalle St., Chicago; F. D. HIRSHBERG & BRO., 120 N. Third St., St. Louis; B. M. ALLISON, State Agent for Ala. and Tenn., Birmingham, Ala.

Deposited in United States,

Policies issued giving full protection to Employers against loss by Claims from Employees on account of Accident. Rates Proportioned to Risks of Occupation. One Premium the only Payment during year. No Contingent or other Liability on part of Employer.

\$845,000.00.

Employers with Pay Rolls of \$103,000,000 already covered in United States. No Employer should be without this Protection. Cases Investigated by Competent Inspectors and considered by Eminent Counsel. If liability shown, Claims settled without litigation.

71 KILBY STREET, BOSTON.

VO
NE
Pr
WE
con
we h
paper
close
expr
the p
great
these
opin
sign
poin
and
M
Sout
are a
of p
this
that
A
he ha
dolla
inve
there
ing
Mr.
gag
vast
Geor
he in
land
If
in th
befor
South
taken
make
when
and
W
is he
to th
the p
to se
that
are o
this
a ren
South
the b
impr
this
if th
let th
AN 1
[From
Fe
imp
alike
long
voca
betw
tene
cultu

MANUFACTURERS' RECORD.

[Name Patented 1889.]

A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER.

VOL. XXII. No. 47. 1
WEEKLY.

BALTIMORE, NOVEMBER 25, 1892.

\$1.00 A YEAR.
1 SINGLE COPIES, 10 CENTS.

NEWSPAPER OPINIONS OF THE SOUTHERN OUTLOOK.

Present Conditions and Future Prospects as Reflected by the Southern Press.

We present below a collection of opinions concerning the outlook in the South which we have gathered from the Southern newspapers. Inasmuch as the papers are in close touch with the people, the views expressed may be taken as representing the generally prevailing sentiments of the great mass of the people. We present these views not on account of the political opinions they express, but because of their significance from a purely business standpoint. As such they carry much weight and are entitled to consideration.

Millions of Dollars for Georgia.

[Savannah *Morning News*.]

The belief is quite general among the Southern people that the Southern States are about entering upon the greatest period of prosperity they have ever known. In this State the signs of a growing confidence that better times are at hand are unmistakable.

A few days ago Governor Northen said he had reason to believe that millions of dollars of outside capital would soon be invested in enterprises in the State, and there are movements looking to the bringing in of the better class of immigrants. Mr. C. J. Haden, of Atlanta, is now engaged in preparing a pamphlet giving a vast amount of information relative to Georgia and her resources. This pamphlet he intends to distribute throughout England and Germany.

If once the tide of immigration is turned in this direction it will not be very long before the vast area of unoccupied lands in Southeast and Southwest Georgia will be taken up by thrifty immigrants who will make for themselves comfortable homes where there are now only unbroken forests and unexplored swamps.

All Eyes on the South.

[Galveston *Mirror of Commerce*.]

Wherever one goes in the North there is heard the same oft-repeated inquiries as to the state of business in the South and the possible chances offered by this section to settlers. Everywhere it is apparent that the eyes of hundreds, yes, thousands, are on the South, and that information from this section of value to those contemplating a removal here is eagerly sought for. The South is generally regarded now as offering the best opportunities to those desirous of improving their condition. The results of this state of feeling will soon be apparent if the Southern States take proper steps to let these people know just what they offer.

An Era of Prosperity and Happiness.

[From the annual message of Governor Jones, of Alabama.]

Fear of hostile congressional legislation, imperilling our institutions and destructive alike of our peace and prosperity, no longer disturbs the pathway of our daily vocations. Federal taxation, which stood between industry and its profits and fastened an insidious servitude upon our agricultural and industrial classes, has at last

been overthrown to give place to a reign of wiser and more benignant laws. Sectionalism, in all that is unwise and harmful, is dead. We are entering upon a new and better era of happiness and prosperity.

Encouraging Reports from the South.

[*Bradstreet's*, November 19.]

There is a more cheerful tone to nearly all reports from Southern cities. New Orleans reports cotton one cent higher, sugar active and rice in free movement, with an upward tendency to prices. Now that the strike has ended, lower temperature alone is needed to greatly stimulate distribution. These conditions to some extent characterize Atlanta, Birmingham, Charleston and Richmond, where the volume of business has increased and collections have improved. Like reports come from Nashville and from Memphis, while Baltimore, which does a large trade with the South, sends word that while the season's consumption of staples has been small, an improved business for spring trade is expected. Business collections are generally fair.

"Everything Is Coming Our Way."

[*Greenville (S. C.) News*.]

The results of Tuesday mean much more to the South than mere political advantage. They mean the lifting from us of the shadow of the force bill and promise of a long period of peace and opportunities for progress and prosperity.

The South began to boom in 1884. She boomed splendidly until two years ago. Now let her boom again. Let every man lay hold with hopeful heart and willing hands and rush things right along. Everything is coming our way now.

If a Democratic Congress will give us lower duties to cheapen prices and improve the currency conditions so as to relieve us of the fear of panics, we need ask no more. We can look with confidence for flush times and prosperity as sound as rapid.

The solid South will boom gloriously if the men of the solid South will move to make her do it.

Texas Turned Loose.

[*Austin Statesman*.]

Texas offers such advantages of investment that will be availed of by shrewd business men, and the State will stretch forth her arms as a mighty giant, and gathering in the machinery to start the wheels of enterprise, she will move on to the most astonishing prosperity and greatness in the commercial, manufacturing and agricultural departments of industry.

Nothing in the world can prevent this but prohibitory and suicidal laws, and the people of Texas have too much sense and too high a regard for their own interest to blight her prospects by any more restrictive or illegal legislation.

The Tide of Development Southward.

[*New Orleans Picayune*.]

Now, look out for an era of great material development in the Southern States.

That the Southern States of the Union are incomparably rich in natural resources is a fact that cannot be controverted. In

coal, iron, timber, building stones and other natural material the resources are practically inexhaustible and almost untouched, while the soil that produces all the cotton, sugar and rice, and is capable of competing in corn and other food products with the other States of any section, must command attention. The Southern oyster and other fisheries are also important.

With an abundance of money, both in the Union and in England, seeking profitable investment, there is no other field that so advantageously invites it as is afforded by the extraordinary resources of our Southern States. There was but one circumstance that has militated in the last few years against a grand tide of development in these States, and that was the fear of a general disturbance of the social and political system and a complete unsettling of values and a disorganizing of all industries caused by threatened radical legislation by Congress.

When the Fifty-first Congress commenced its sessions under the influences which then dominated the government, the country was threatened with the enactment of the Lodge force bill or other equally proscriptive and arbitrary measures. Many of the Northern papers sounded a note of alarm, and warned investors to beware of the South because of the dangerous sectional tendency of Congressional legislation. The force bill finally failed, and by so mere a chance that nobody could have any confidence that it had been thoroughly defeated. On the contrary, it hung over the country as a terrible menace, ready at any moment, while the Republican party was in power, to bring down calamity upon the country, and particularly upon the Southern people.

This sword of Damocles was suspended over the destinies of these States until the great political revolution of Tuesday, a week ago, proclaimed from mountain to sea, from river to plain, from the lakes to the everlasting hills, that sectionalism in American politics was no more; that a government of the whole people, by the whole people, for the benefit of all, had been re-established.

There will be no more danger of proscriptive legislation, and the people of the South, white and black, with their mines, their forests, their quarries, their fisheries, their fertile soil and genial climate, will be permitted to work out their destiny for the greatest good to the greatest number and for the benefit and welfare of all, according to good old Democratic doctrines.

Now comes the time for investments in Southern property, for the development of Southern resources, for it can be done in perfect security and with the fairest promise of rich returns for all judicious and intelligent transactions.

Solid Assurance for Capitalists and Investors.

[James N. Slater, of Birmingham, Ala., in interview in *Chicago Herald*.]

The present election has been of almost incalculable benefit to the South, forever quieting the iniquitous force bill, giving capitalists and investors solid assurance that properly-placed loans and investments will be profitable in the South, and especially so in the richest mineral districts, and restoring confidence all along the line. Capital has been unreasonably timid regarding loans in solid Southern cities like

Birmingham, which is largely due to the prejudices incited by unreasonable individuals and newspapers. No money could be borrowed for a less rate than 8 per cent. per annum, and most borrowers in the mineral districts in our vicinity (Birmingham) pay 12 per cent. per annum. In my visits the past four days to many of your prominent concerns engaged in manufacturing iron and steel articles I have not found the managers to be fearful of the future because of foreign competition, even in the event of free trade becoming a fixed thing, and none believe that the Democracy will pass any rank free trade measures.

Dull Times a Thing of the Past.

[*Galveston News*, November 13.]

The cotton market just now is both confusing and interesting, and the immense daily sales of futures show that the speculation of the world is centring in it. Every revision of crop estimates is toward lower figures, and those who believed in 7,000,000 bales last week are not at all unwilling to concede that, after all, they may have been mistaken. The loss of over 100,000 bales each week cannot be explained away by anything else than some shortness of the crop. The farmers and interior merchants are holding back cotton for better prices, it is true. Everybody knows that, but everybody knows also that it is unreasonable to suppose that they are holding back such a large proportion of the crop as the light receipts would indicate. But it is both unprofitable and unreasonable to speculate about this, for the next ten days will show whether it be true or not. Higher prices have come. The election is a thing of the past. There is no longer any reason to hoard up cotton, and there is every reason to market it. For the moment the situation favors the bears, but whether they will be able to profit by it should the expected come to pass remains to be seen.

There are indications of the most substantial character that the cotton crop will soon be moving freely. Not only this, but that there is about to be a general revival of business. There is a very active demand for money, and on yesterday the Galveston banks received more applications for money from the interior banks than they have received in the last four months altogether. This demand shows clearly that the dull times caused by election excitement is a thing of the past, and that the people have turned their attention seriously to business.

The failures in Texas for seven days past number only six, and all were for small amounts and none had more than local effect. Collections are slow as yet, but an improvement this week is looked for.

The South's Great Opportunity.

[*Pensacola (Fla.) News*.]

The proper presentation of our natural advantages must be followed by investments which should double the available wealth of the South within the next four years. Factories should draw nearer the source of supply. Our valuable water-power should be utilized, our mineral wealth should be worked and capital should coin from our sunshine the gold of commerce.

We are in better shape to open up our resources than we were eight years ago. Long lines of rail now open up sections

heretofore inaccessible. Valuable discoveries have been made on every hand, and our own industries now make a better showing. Florida is now ready to prove that she can furnish fertilizers of the best character to the farmers of the East and West. Eight years ago we were not ready to prove that our State could produce more sugar than Louisiana has ever done. Our lumber market should be stirred to fresh activity by freer intercourse with England. Our fruit has just commanded a line to Liverpool "all by itself."

And Pensacola, with the finest harbor in the South, will be remiss in duty to herself if she does not enlarge her markets and control new products from the interior. She might double her fish industry by the erection of a canning factory. With a whaleback fleet she could easily become queen of the Gulf. Only a little enterprise and capital should be required to open up a direct trade with our neighbors of Central and South America.

"There is a tide in the affairs of men," and he who does not take advantage of the next four years is recreant in duty to himself, his neighbors and his country.

Have Confidence in the South.

[Gadsden (Ala.) *Times-News*.]

Well-meaning but misinformed persons are declaring every day that all the "boom" has expired in the South; that there is no encouragement for the investor; that the majority of recently established towns and industrial enterprises are at a standstill, and that years must pass before there will be any improvement.

It would be idle to deny that so far as new town enterprises and industrial undertakings are concerned, the Southern country has experienced a reverse, but such reverses come to all countries, and are as severe elsewhere as they could possibly be in the South. The causes of this depression were in a large measure foreign to the South. The financial stringency beginning with the Baring failure has been felt all over the country, and it is no wonder that in times of enforced conservatism there should be a lack of enterprises, many of them novel and experimental. Then came the misfortunes of the phenomenally low price of cotton, which caused distress to the farmers and thus weakened seriously the foundation support of the country. Times go by turns, and it is impossible to suppose that in a country like the South such a state of things should last indefinitely.

It is unnecessary to recount here any of the facts illustrative of the wonderful resources of the South, or of its extraordinary progress within the last decade.

We believe the time will come speedily when full faith in the South will be restored, and when the flow of capital and enterprise will go on as heretofore. The facts which prompted the expenditure of immense sums of money and the starting of development works are as strong to-day as ever.

The South is a great country, with splendid climate and a magnificent variety and plentitude of resources. In these days, when population is continually pressing into new fields, such a country is bound to be taken up by settlers. Meanwhile every interest in the South is progressing. It is the country to live in and grow up with, and at this moment there is no part of the world where the promise of ultimate prosperity is so bright. A country with so many advantages must necessarily come to the front, and those who identify themselves with it, having an abiding faith in its future, will not be disappointed.

A Prosperous Era Inaugurated.

[Knoxville (Tenn.) *Sentinel*.]

The belief is general that Cleveland's administration will see such an era of prosperity as the country has not seen for years. That this confidence is real is manifested by the money already put in various enterprises since the day of the memorable elec-

tion, the largely increasing volume of business, and the happiness felt all over the country, and especially in the South, at his almost unanimous choice as President.

In Knoxville the beneficial effect has been felt already. Mr. J. Allen Smith said to a *Sentinel* reporter this morning that the orders sent his plant (the City Mills) from the Southern territory had been double since Cleveland's election and the advance in the price of cotton. The territory referred to is principally North and South Carolina and Georgia.

Mr. Jacob L. Thomas is jubilant over the prospects for a prosperous era and an enlarged business. "Already," said he, "we have several orders for immense proportions of new stocks, which fact nearly all members of our firm attribute to the election of Mr. Cleveland. And even should there be no change in tariff legislation, the confidence reposed in the coming administration will cause an increase in all branches of business."

The Knoxville Woolen Mills, one of the largest industrial concerns not only in Knoxville, but in the State, has felt no depressing effect. To the contrary, they have put in operation 200 additional looms for the manufacture of flannels, etc., the improvements costing from \$50,000 to \$75,000. This addition to the main plant has just been put in operation and affords employment to 100 employees, principally women and girls.

A General Feeling of Prosperity.

[Macon (Ga.) *Telegraph*.]

Merchants say that they are selling all the goods they can handle and that collections were never better. The drummers who have been out on the road all the last week report the people in all parts of the State as being more hopeful of better times in the future, and to this end are buying large bills of goods and settling up back accounts.

The advance in cotton has made the farmer more hopeful, and while it is true that most of them have marketed their cotton, yet the advance has given them hope and courage, and they are settling up for supplies that had been furnished them on time.

In order to ascertain whether the election had actually benefited the trade of the city, a *Telegraph* reporter called on a number of wholesale merchants Saturday to obtain their views. The first place visited was the Macon Hardware Co., and in response to the reporter's query, Mr. John Van Syckle said: "Trade is picking up wonderfully. You can say for us that our trade is good and increasing daily. Our drummers find no difficulty in selling goods, and the people are very hopeful. One thing worthy of mention is the fact that we have not had a failure among our customers this year, but, of course, the election had no bearing on that."

W. DOXFORD & SONS, boat builders, of Pallion Sunderland, England, have recently completed for Messrs. Crow, Rudolf & Co., of Liverpool, who are the foreign agents of W. S. Keyser & Co. and Hyer Bros., of Pensacola, Fla., the steel steamship Samoa, which is said to be the largest cargo vessel in the world. She is 465 feet long and 52x36 feet beam and has a gross register of 6,400 tons, dead weight capacity of 9,500 tons on 25-feet draught and gross displacement of 13,600 tons. The Samoa will have a speed of ten and one-half knots an hour.

THE Farmers and Laborers' Union, Farmers' Alliance and Farmers' Mutual Benefit Association held a joint meeting in Memphis, Tenn., on November 16, 17 and 18. Delegates were present from many States. The usual business was transacted and officers elected for the ensuing year. H. L. Loucks was re-elected president of the Farmers' Alliance.

Shipping Florida Oranges to London.

ON BOARD STEAMER ETHELWOLD,
FERNANDINA, FLA., November 16.

There is nothing attracting the attention of the orange growers of Florida at present so much as the experiment of the shipment of a cargo of oranges to London. We say experiment, because it is the first whole cargo that is sent direct from a Florida port to a foreign one, although numerous shipments have been made from New York in small quantities of twenty-five to one hundred boxes. The direct export scheme was evolved by Mr. E. S. Goodsell, of 103 Park Place, New York, about five years ago, when he sent out circulars to the Florida growers asking for a pledge of fruit to make up a cargo, but the growers were rather shy and nothing definite could be done except via New York. Every year since Mr. Goodsell has made efforts to get fruit enough pledged to warrant chartering a first-class fruit steamer. Last January, however, he determined to make the experiment whether or no, and made all the preliminary arrangements and in time chartered the "Ethelwold," of Glasgow, a steamer built in 1890 expressly for fruit trade. The steamer, therefore, has been in service less than two years. All the best methods of ventilation known up to the time of building were adopted. There are two ventilators fore and aft for each deck, with cut-offs, so that the current of air can be changed at will. These ventilators are so effective that a current of air is produced at the hatches that nearly lifts one's hat off in looking down.

The Ethelwold is a screw steamer, with triple expansion engine, cylinders 18, 27, and 45 inches diameter, boiler 17x13½ feet steel plate 13-16 inch thick, with an average speed of twelve knots per hour. It will be readily seen that if a cargo of oranges will carry to England in any vessel, it certainly will in the Ethelwold.

Early in September Mr. Goodsell sent out circulars to the orange growers of Florida announcing that he had chartered the Ethelwold for London, and she would be in Fernandina on the 10th of November, and prepare to sail on the 15th. In the course of a few weeks 13,000 boxes of oranges were pledged by the growers, but a number of them have weakened and the steamer will put to sea with less than 11,000 boxes. Everything has been done by the different railroads of the State to facilitate the gathering of fruit to Fernandina in the quickest possible time and best condition. The weakening of the growers is due to the fact that the fruit is several weeks late in maturing, and they have an aversion to sending anything but ripe fruit. Again, hammock fruit matures earlier than that from the pine land, and many of the pledges are from the pine-land groves.

The storing away of the fruit has been done in the most thorough manner under the direct supervision of Mr. Goodsell. Thorough ventilation has been the aim. Dunnage has been placed on each deck so that the bottom tier of boxes is not within eight inches of the deck. Every five or six boxes a space of four inches is left which is properly chocked to prevent shifting. This enables a current of air to pass from one end of the hold to the other and to the hatches.

Mr. Goodsell's faith in the results of the shipment is such that he had advanced seventy-five cents per box to the growers and paid all freight charges, so that while the growers have only a few dollars at stake, Mr. Goodsell has thousands; and it stands to reason that nothing will be left undone to make the experiment a success. If the English people will buy this cargo at a price that will pay the growers of Florida, other cargoes will follow, and it is earnestly hoped that it may be so, as it will furnish an outlet for an immense amount of fruit; and as the acreage of bearing trees is con-

stantly increasing, this outlet will be of inestimable value to the growers.

The last carload is now being put aboard, and soon the Ethelwold, with the first cargo of oranges for a foreign port, will steam out, with Capt. William Burrell in command, accompanied by his faithful wife and full crew, and your humble servant as supercargo.

E. O. PAINTER,
Of DeLand, Volusia county, Fla.

P. S.—A daily account will be kept of the temperature of the hold during the voyage over and reported to the MANUFACTURERS' RECORD on arrival, together with the apparent condition of fruit.

Importance of Savannah's Commerce.

By Col. I. W. Avery.

The entire commerce of Savannah in 1891 amounted in value to \$153,550,000, the highest figure it had ever attained. The following table gives the value of the principal items of import and export for that year:

	Value.
Cotton, 1,139,608 bales.....	\$52,000,000
Groceries.....	25,000,000
Naval stores, 991,880 barrels.....	6,300,000
Lumber, 107,371,682 feet.....	4,500,000
Fertilizers.....	3,000,000
Liquors and tobacco.....	4,250,000
Provisions.....	5,000,000
Dry goods.....	4,500,000
Clothing.....	1,000,000
Boots, shoes and hats.....	2,000,000
Hardware.....	1,500,000
Furniture.....	1,000,000
Jewelry.....	750,000
Drugs, oils and paints.....	1,250,000
Manufactures.....	7,500,000
Retail trade.....	26,000,000
Miscellaneous.....	8,000,000
Total.....	\$153,550,000

For fifty years Savannah has been the principal port of Georgia, Florida and a great part of South Carolina. Its commerce began mainly in 1822, when it amounted to 105,261 bales of cotton and 11,232 tierces of rice. The Georgia Central Railroad in February, 1847, increased her exports \$840,000 over that month in 1846. The development of Savannah's commerce since that time has been rapid and constant:

Imports and exports in 1860....	\$26,000,000
" " " 1872....	73,000,000
" " " 1886....	102,000,000
" " " 1891....	153,550,000

The increase in imports and exports by water is indicated by the following figures:

	1872.	1890. (Census figures.)	Inc. Per cent.
Cotton.....	\$34,266,847	\$50,016,550	35
Naval stores.....	548,805	5,974,879	600
Lumber.....	187,649	1,677,125	200
Rice.....	187,649	205,320	10
Pig iron.....	25,500	1,500,000	760
Hides and wool.....	170,410	541,810	200
Fruits & vegetables.....	429,015	3,547,842	800
Yarns and Textiles.....	2,105,660	2,290,300	500
Miscellaneous.....	1,412,440	7,062,271	500
Total exports....	\$39,446,716	\$72,816,107	
Total imports....	32,849,056	70,083,713	
Grand total.....	\$72,295,772	\$142,889,820	

The growth of business has been remarkable. Cotton exports increased from less than 500,000 bales in 1872 to 1,139,608 in 1891.

Naval stores swelled from less than \$50,000 in 1873 to \$6,223,000 in 1891.

Timber grew in fifteen years from less than \$500,000 to more than \$1,500,000 at 50 per cent. less price.

Fruits and vegetables ran from less than \$500,000 to more than \$3,500,000.

Pig iron enlarged from \$25,000 to more than \$1,500,000.

Cottonseed-oil from nothing grew in five years to \$1,000,000.

The tonnage in 1873 was 1,074,367 tons, and increased to 1,828,614 tons in 1890 with only 116 vessels more, showing increased water depth and heavier ships.

Savannah has received 13 per cent. of the United States cotton crop for years.

Savannah is the natural market, besides, for Southern cotton, for the phosphates, naval stores, lumber, fruit and vegetables of Florida and Georgia, and the coal and iron of Georgia, Alabama and Tennessee.

Cotton Culture in East Africa.

German residents of Witu, a country in East Africa containing about 520 square miles, and which became a German protectorate in 1889, have been experimenting during the last year or two with the cultivation of cotton. These experiments have attracted considerable attention both in Eastern Africa and in Germany, particularly in the latter country. In a recent report made by Vice-Consul Simons, under the direction of Sir Gerald Portal, it is stated that, were it not for the difficulty experienced in securing a sufficient number of laborers to look after the growing cotton, the experiments would have been eminently successful. The labor obstacle, it seems, has not yet been fully overcome, but the hope is entertained that in a short time an ample supply of labor will be had, as the labor supply has heretofore always fallen short of the demand, and as the present laborers are in every way unreliable, any new enterprise that may be undertaken, the consul says, "must necessarily suffer thereby both in finances and results" until this trouble can be gotten over.

In his report the consul takes as an example a plantation of 200 acres located at Wange, near the port of Lamu. The preliminary expenses of this enterprise were about \$6,000, of which about \$4,000 was expended in buildings, sheds, etc. A single native laborer can prepare and cultivate during the season, the length of which is eight months, about four acres. There are two classes of labor on the coast, one paid at the rate of sixteen cents per day for each working day, or \$4.25 a month, and the other receiving twelve and a-half cents a day, or \$3.25 a month, payment being made partly in cash and partly in food and tobacco. The average yearly cost of cultivating 200 acres of cotton is therefore between \$1,500 and \$1,600. A plantation of this size requires about 4,000 pounds of cottonseed, which costs about \$375. The cotton, when picked, will yield about 60,000 pounds of lint cotton similar to Sea Island and 600,000 pounds of cottonseed, besides some 20,000 pounds of refuse and dirt. With care and good management the crop of cotton could possibly be increased to 100,000 pounds on a 200-acre plantation.

Out of the first season's experiment some 800 bales of 100 pounds each were sold for about \$9,000, from which about \$1,000 were deducted for freight, insurance and other charges, leaving a balance of \$7,910. The cost of production, excluding preliminary expenses, was \$5,065, leaving a profit on the cotton, after allowing interest on the capital invested, namely, \$6,000, of between \$1,300 and \$1,900, or over 30 per cent.

It will be observed that in the above calculation no account is taken of the 100,000 pounds of cottonseed as a source of profit, either by the extraction of oil or for other purposes. It may also be stated that on the plantation under review about 8,000 cocoanut trees have been planted, and that these trees do not at all injure the growth of the cotton. The trees are expected to yield an annual profit of about thirty cents each, or \$2,400 in the course of six or seven years. But this item is not, of course, taken into consideration in the cotton-growing experiment under review.

From the details given above it seems very probable that, if the difficulty in securing the proper kind of labor can be overcome, there is a good field on the Witu coast for the culture of cotton. The country all along the coast, from the Umba river to the Juba, is particularly adapted to the cultivation of Sea Island cotton. The soil generally is good and is covered with luxuriant grasses, and large tracts of the country are practically free from brushwood, scrub and jungle. The natural conditions are all favorable to the culture of cotton to a re-

markable degree, the only drawback of any account being the inadequate supply of labor. In the German territory this difficulty seems to be in a fair way of being removed, and we confidently look, therefore, in the next few years for a considerable increase in the cotton supply from this new field on the eastern coast of the Dark Continent.

Cotton Crop Guesses.

Messrs. W. White & Co., of Dallas, Texas, recently asked a number of prominent Texas cotton firms for their estimates of the Texas cotton crop and also the total American crop. The estimates received were as follows:

	Texas.	American.
Randall, G. H., Waco.....	1,900,000	6,900,000
Anderson, Neil P., Fort Worth.....	1,700,000	6,900,000
Martin, Wise & Fitzhugh, Paris.....	1,750,000	6,750,000
Woodward, E. P., & Co., Waco.....	1,900,000	7,250,000
White, W., & Co., Dallas.....	1,900,000	6,900,000
Bennett & Lovett, Hillsboro.....	1,750,000	7,000,000
Brown, J. H., & Co., Tyler.....	2,000,000	7,000,000
Fulton, A. & Co., Sherman.....	1,800,000	6,750,000
Robards, W. C., San Antonio.....	1,800,000	6,800,000
Edwards, H. L., & Co., Dallas.....	1,800,000	6,900,000
Jarratt, C. W., Belton.....	1,900,000	7,250,000
Smithers, J. T., Belton.....	1,800,000	7,000,000
Wood & Kincaid, Honey Grove.....	1,750,000	6,750,000
DePass & Co., Corsicana.....	1,800,000	7,000,000
Bath, Felix P., & Co., Dallas.....	1,950,000	7,000,000
Sorrells, C. T., Hillsboro.....	1,800,000	6,950,000
Robertson, W. R., Mexia.....	1,900,000	7,000,000
Lewine Bros. & Co., Gainesville.....	1,750,000	7,000,000
Calhoun, W. E., & Co., Gainesville.....	1,750,000	6,644,000
Witherspoon, C. F., Denton.....	1,600,000	6,900,000
Batemann, J. W., Nacogdoches.....	1,200,000	7,700,000
Crow, W. J., Henderson.....	no est.	7,125,000
Birge, W. A., & Son, Sherman.....	1,900,000	7,000,000
Bruce, S. R., & Co., Mineola.....	1,750,000	6,750,000
Andrews, C. A., Sherman.....	1,800,000	6,900,000
Aver, William, Brenham.....	2,000,000	7,200,000

Alabama Industrial and Scientific Society.

The Alabama Industrial and Scientific Society held a meeting in Birmingham, Ala., on November 16, at which a number of interesting papers were read. The first paper was read by Henry McCalley, of the State Geological Survey, the subject being "Alabama Bauxites." It is only recently that bauxite has been found in Alabama, and thus far but two companies are engaged in mining it. These have shipped some 5,000 tons to Pennsylvania and New York, where it is used largely in the manufacture of alum. Analyses show it to be equally as good as that found in France. Thus far deposits have been found in Cherokee, Calhoun and Cleburne counties, and it is thought careful search will disclose deposits equally good in other counties.

The second paper read was on "The Clays of Alabama," by Dr. E. A. Smith, State geologist. In this the writer treated the subject both from a scientific and practical point of view. After showing the localities and formations in which the clays occur, he described the severe tests which had been made, and stated that some of them were found just as refractory as the Mount Savage clays. The buhrstone from Choctaw county was described as of especial interest, since bricks made from it were found unchanged after having been subjected to severe tests for some weeks in Birmingham. The quantity is said to be sufficient to supply the world with refractory material. Dr. Smith states that the trouble with it is that, being so light, manufacturers of bricks are afraid to use it for fear that the bricks would be refused by furnacemen.

Mr. G. H. Montgomery, of Jacksonville, read an interesting paper on the need for accuracy in mine surveying. Following this R. C. McCalla, Jr., of Tuscaloosa, told of the government improvements on the Warrior river, and predicted that within a few years coal would be delivered by water to Mobile at a cost of \$1.50 per ton. Dr. Smith then showed some fine stones which had been cut by Tiffany & Co., from a berl crystal found in Coosa county. He says many of these crystals will probably be found in the same county if search is instituted in a scientific manner.

Southern Interstate Road Congress.

On November 16, 17 and 18 the Southern Interstate Road Congress met in Memphis, Tenn. S. W. Mullins, a member of the executive board of the National Road Congress, was elected president. A committee appointed to report on the advisability of co-operation with the National League recommended that the Southern Interstate Road Congress be merged into the former. Resolutions were passed calling on the legislatures of different States to enact such laws as would improve the condition of the public roads, and also one endorsing the arrangement for a separate exhibit of different road systems at the World's Fair.

Regarding the general improvement of roads the congress recommended that each State provide an engineer, who, with the assistance of county or congressional district engineers, shall supervise the construction of all roads in the State. As to the use of convicts, it was recommended that in those States where convicts can be used on the roads it shall be done under the general policy of delivering to each county the penitentiary convicts under such restrictions as to number delivered to one county at one time as shall give every county in the State a fair chance to secure a proportionate number of the convicts, they to be worked in conjunction with the county convicts on the public highways.

In discussing this point, J. P. Young, of Memphis, said that placing Shelby county convicts under the supervision of the turnpike commissioners had greatly benefited the roads. The average cost was about thirty-seven cents per capita per diem. Regarding the cost of keeping the roads otherwise, he said there were 10,000 men in Shelby county who were subject to road duty nine days each year. If they valued their time at even \$1 per day this would be a cost of \$90,000 per annum. By using convicts the larger part of this would be saved and the work better done.

Various other resolutions were passed recommending legislation on the subject of wide tires for wheels, declaring that labor and property should bear their proportionate share of the construction and maintenance of improved highways, and recommending the organization of road congresses in each State, to stimulate the work in the State and serve as auxiliaries to the National League.

How Railroad Towns Grow.

[From the *Baltimore American*.]

The growth of Brunswick (Frederick county, Md.) has been wonderful. From a village of about one hundred inhabitants two years ago, it has grown into a town of fully 2,000 people, and it is estimated that two years hence it will contain a population of fully 5,000. The Baltimore & Ohio Railroad Co. continues to add to its already extensive plant there, an immense transfer station now being in course of construction, and now has over 1,200 employees in the town. Over 225 dwelling-houses have been erected this year, and fully 200 more are being built. During the coming year at least 300 houses will be constructed. The greater part of these will be used for railroad employees and their families. Among the buildings nearing completion are a fine brick schoolhouse to cost about \$5,000, by the authorities of Frederick county, and an extensive system of water works to supply the rapidly growing town with pure water. Arrangements are being made to rebuild the bridge across the Potomac, between Brunswick and Loudoun county, Virginia, which was destroyed during the war, the piers of which are still standing. When completed the bridge will prove a great convenience, as the only means of communication at present is by ferry.

The railroad company has set apart ten acres of ground in the centre of the town for a public park, and intends to beautify

and embellish it in order that it may become a popular resort. The Baltimore & Ohio will also soon commence an addition to its large yards, it being the intention of the company to have accommodations for 4,000 cars.

Southern Money in Southern Development.

[From the *Chattanooga News*.]

There is no city in the South that has attracted more attention and more capital than has Chattanooga, and no city can point to a better record in the way of rapid and substantial growth. Much of this has been accomplished by what might be called native effort and capital. Part has been done by Northern and Eastern people who have moved here, and the remainder is the result of the work of people from other Southern States.

The labors of each one of these are appreciated, and Chattanooga to-day welcomes good citizens from any and all parts of the country. By united effort these people have made Chattanooga what she is to-day, and they are continually at work improving her condition.

So wonderful has been the influx of settlers and capital to the city that it has furnished the subject for much comment, and abroad and even at home the impression has been made that Chattanooga's advancement is due to Northern capital and Northern energy, and is in fact a Northern city. All credit is given the North for the improvements, and of course much should be given the gentlemen from that section who have done so well for this country, but the fact remains that the South has itself done a great deal more both in the way of furnishing capital and in planning and doing the work than any other part of the country.

When the various enterprises are counted it is found that Tennessee, Georgia, Alabama, Mississippi, Louisiana, Kentucky, the Carolinas, and last, but not least, Florida, are all represented in the great work of development, and their part greatly exceeds any other.

For instance, during the past few weeks over \$200,000 has been placed in Chattanooga by Florida parties. Before this parties from that State had invested at least that much more. This is merely an example, and instances of the same kind from many other Southern States can be mentioned.

A careful view shows that most of Chattanooga's improvements are due to these people, and the idea that the North has done it all is entirely incorrect.

This fact is merely mentioned to correct an erroneous impression. Our city is the home of all good people of any section who want to reside here, and almost every State in the Union has a share in our wonderful development.

Improvements in South Baltimore.

Mr. Joseph M. Cone, the well-known builder, has purchased three large tracts of land from the South Baltimore Harbor & Improvement Co., and is going to improve them by erecting good substantial pressed-brick-front houses with marble steps, and to contain all the modern improvements.

The water works are just completed, and the fire department has been equipped with improved machinery and appliances to extinguish fires.

The progress of South Baltimore has been remarkable during the past few years, and in addition everything points to a busier and more prosperous time during the coming year. Many prospective buyers have been looking over the property with the intention of putting up buildings for residences and manufacturing purposes. It is probable that one of the largest packing houses in the country will locate on the property of the South Baltimore Harbor & Improvement Co.

PHOSPHATES.

The Florida Phosphate Industry.

By Edward Willis.

[From the Eleventh Census: Report on Mineral Industries.]

The occurrence of phosphate rock of low grade in this State has been known since 1883, when noticed by Prof. Lawrence C. Johnson, but in 1888 discoveries were made of deposits of large extent and high in their percentage of phosphoric acid. These deposits have continued to attract attention, have been the scene of speculation, and have been developed with great rapidity and enterprise.

It was known in 1882 that phosphate deposits could be found following an irregular line from Thomasville, Ga., down through Hamilton, Suwanee, Alachua, Marion, Sumter and Polk counties, disappearing in Manatee county in the region of Charlotte Harbor. They have been noticed more particularly from Live Oak, Suwanee county, to Ocala, Marion county, and attention has been paid only to this region. The region north has been traced by popular report, not by careful survey. These deposits are in high land, and the line of phosphates is generally coincident with the upper part of a ridge running approximately north and south. Commencing with the upper limits of the deposit, it is impossible to say how much of the rock is really phosphate and how much is Vicksburg limestone, with which it has been confused. From Live Oak to Ocala there is little of the limestone, but the phosphate rock is very abundant. It is usually a very porous rock containing through its mass the bone and teeth of various vertebrates. In badly drained spots it is wet and then soft, so that it is easily broken, but on drying it becomes so much harder that it is valued as a building stone, and has been so much used for chimneys and underpinning for houses that it is known as "chimney rock." The ridge with its phosphate deposits skirts the great region of depression which includes the sinks of Alachua county. Three miles north of Waldo, in this county, there is a large, dry sink in which Mr. John A. Preston found phosphate rock containing 25 per cent. of phosphoric acid at a depth of fifty to seventy-five feet." At Fort Harvey, near by, deposits have also been found, and again on the borders of Santa Fe lake. The Devil's Millhopper is another sink about five miles west of Gainesville which contains quantities of loose boulders of phosphate rock. Near it is a large quarry of building rock, also phosphatic. Three miles west of Hawthorne there is a deposit of thirty-five to fifty acres called Simmons's Quarry, from which samples have been taken showing 45 per cent. of calcium phosphate. Similar deposits have been described near Newnanville. Little attention has been paid to these deposits, although in 1883 Dr. C. A. Simmons, of Hawthorne, began quarrying the rock and converting it into fertilizer. Many other isolated spots had been noticed in the State before attention was prominently called to Florida by the developments of 1888. Among such deposits was one passed through in digging the pump-well for the Jacksonville water works. At a depth of twenty feet a thin layer of greenish marl containing considerable phosphate was observed.

In 1888 phosphate rock of high grade was discovered on the Peace river. The Arcadia Phosphate Co. has made extensive developments on rock there exposed in the river bed. A permanent bridge has been built, and drying kilns, hoisting machinery and screens are in operation. In 1888 the company began shipments, which amounted to 3,000 tons. The richest rock is in the form of coarse sand from the river bar.

The year 1888 also developed an entirely

different class of phosphate deposits, of undoubtedly great value to the State, and which have attracted attention in all parts of the United States and even in Europe. At the close of 1888 Mr. Albertus Vogt, living near Dunnellon, a village on the Withlacoochee river, in Marion county, found fossil teeth in a white subsoil. Some of this white soil was submitted to a chemist for analysis, and found to contain a large proportion of phosphate of lime. This soil was soon found to extend in a more or less pocket belt over a district some thirty miles long and six wide. Active exploration began at once and extended, rapidly, with the usual speculative excitement of such discoveries. The fact is well established that much of the material is of unusually high grade—the highest in the United States. This developmental and speculative work was the main feature of the census year. The following table shows the expenditures made in regular mining:

STATISTICS OF PHOSPHATE MINING IN FLORIDA
1889.

Total phosphate rock produced (long tons)	8,100
Total phosphate rock sold (long tons)	4,160
Stock on hand January 1, 1890 (long tons)	4,000
Total value of product	\$40,560
Number of hands employed	64
Expenditures:	
Total wages (including office force at mines)	\$17,404
Paid for supplies	1,800
Paid for other expenditures	523
Total	\$19,727
Capital invested:	
In land	\$130,000
In buildings	22,000
In tools and machinery	8,000
Cash	5,900
Total	\$165,000

Florida phosphates may be divided into four classes, namely, the hard rock, the soft rock, the land pebble and the river pebble.

Of the hard-rock phosphate there are certain local variations—the massive rock itself, the laminated rock, in which there are narrow layers of phosphate separated by the equally narrow interspaces, and the plate phosphate, which is probably derived from the laminated variety, and is thus far found only in one or two localities in Florida in the more recent deposits. The hard-rock phosphate is white, creamy, gray or yellowish-brown in color, and varies in texture and structure from one of homogeneous appearance to a brecciated variety, and to still others carrying considerable sand and clay. It is sometimes stained in a slight degree with iron, and always contains more or less alumina. The percentage of phosphate of lime contained in this class of rock is between 80 and 86.

The extent of the hard-rock phosphate as thus far developed is from a point about south of Tallahassee, following the line of the Gulf at a distance of from twenty to thirty miles around to a little below Dade City in Peninsular Florida. Its length is a little less than 200 miles. The deposit is not continuous, but may occur at any point within its length. It also extends into the north of Florida quite to the Georgia line in the vicinity of the Suwanee river. The width of the belt is between six and ten miles. Mining is by open pits, and in the case of the older and better organized companies is conducted with the most approved plants. The character of the occurrence of the hard-rock phosphate has not been altogether satisfactorily determined, but the evidence is in favor of a mass, or masses, of boulders piled together over areas of greater or less extent. The actual depth of any of these piles has not been determined, the greatest depth yet reached being about sixty feet from the surface.

From an inspection of the deposits one would be led to think that their materials have not been transported far from the beds of which they originally formed a part. Hard-rock-phosphate boulders have been derived from rocks of two geological ages, one, eocene, which as the widest areal distribution, and the other, miocene, which is found within the so far comparatively limited area southeast of Tallahassee. In the vicinity of Dunnellon, where the hard-rock

region is crossed by the Withlacoochee river, the phosphate has been broken down, and is now dredged from the bottom of the stream in a form somewhat altered from its original condition, or as pebbles. Vertebrate remains occur in abundance. Hard-rock phosphate has also been mined near Boston, Ga., a station on the line of the Savannah, Florida & Western Railroad just north of the Florida boundary.

ANALYSIS OF PHOSPHATE ROCK FROM LURAVILLE, FLA.

	Per cent.
Phosphoric acid, P_2O_5	35.91
Lime, CaO	47.02
Alumina, Al_2O_3	2.37
Ferric oxide, Fe_2O_3	1.46
Magnesia, MgO	0.39
Alkalies, Na_2O	0.19
Sulphuric acid, SO_3	0.36
Fluorine, F	2.35
Chlorine, Cl	0.08
Silica (dissolve), SiO_2	10.10
Carbonic acid	2.67
Insoluble matter	5.07
Water at 105°	1.18
Water at red heat	2.78
	99.93

The soft-rock phosphate occurs both as a deposit by itself and in the deposits of hard rock, filling the spaces between the boulders. It may be either clayey or sandy in its nature. It falls considerably below the hard rock in the percentage of phosphate of lime, and naturally shows a higher percentage.

The land-pebble phosphate is found in a number of localities in Peninsular Florida, the center of production at present being in Polk county, within a radius of eighteen miles of Bartow. Thus far it has been worked only to the west of Peace river, within twelve or fifteen miles of it, but prospectors have reported its occurrence beneath a large part of the surface between Peace river and the Gulf.

It is essentially a mass of white phosphate pebbles lying in a matrix of phosphatic clay or sand, usually a combination of the two. The matrix is easily disintegrated by water and the pebbles are washed out by appropriate machinery. The pebbles vary in size from grains to one inch in diameter, the average being between one-quarter and one-half an inch. They are hard and usually pure white or cream colored on fresh fracture. The percentage of phosphate which they contain is between 75 and 80 per cent., but the yield of the rock as mined would not reach this standard; in fact, falls considerably below it. The land pebble is found in several parts of Florida, in the vicinity of Bartow, in connection with the plate rock at Anthony and Sparr, ten miles north of Ocala, and again northeast of Gainesville, occupying here an extensive area. The age of the land-pebble deposits is probably older pliocene. The methods of mining the land pebble are being rapidly developed, the most complete plant being that of the English company, seven miles south of Bartow, where, under the favorable conditions existing, enormous basins have been dug in which dredges of great capacity are floated. The pebble is dredged, washed by machines adapted to the purpose, dried and then shipped.

The river pebble is found in bars in the rivers of Southern Florida, the greatest production at present being the Peace river, which furnishes nearly the entire product. The other rivers in Southern Florida that are known to carry river pebble in quantity are the Alafia, the two Manatees and the Caloosahatchee; in Northeast Florida, Black creek, a tributary to the St. John's, which enters the latter stream about twenty miles south of Jacksonville, also yields a small amount.

Pebble phosphates are also found in many other streams entering the Gulf, but thus far not in workable quantities. With the pebbles are often found the remains of vertebrate animals. The river pebble is blue or black in color, of a size from one inch down, usually finer as distance down stream is gained. It occurs as pebbles or, more rarely, as the hardened casts of small mollusks, which show some attrition by water. In the Caloosahatchee the pebble

is mixed with ordinary shells of carbonate of lime washed out from the pliocene and postpliocene beds bordering the river above. The derivation of the river pebble is probably very largely from the land pebble deposits, the streams in which they occur draining the country occupied by these deposits. Some of them may also have been derived from the hard rock phosphate. The percentage of phosphate of lime in the river pebble is between 58 and 68 per cent., the average of the cargoes running between 60 and 65 per cent. The river pebble is dredged, washed and floated on the river to the works, where it is then dried, cleaned and made ready for shipment. The phosphate-drying works are very extensive.

Mining Soft Phosphate.

KENDRICK, FLA., November 11.

Dr. R. R. Snowden, of Ocala, a chemist of world-wide reputation, who did so much of the preliminary work during the first days of the phosphate discoveries in Florida, has discovered a process for making available the mineral phosphates without the use of sulphuric acid, and doing away with the expensive plants now necessary to carry on the manufacture of commercial fertilizers. This discovery will be of wonderful benefit to the farmers of the world in cheapening the cost of fertilizers.

The soft phosphates of Florida, which show an analysis of from 60 to 70 per cent. bone phosphate of lime, have not been considered of great commercial value, owing to the high percentage of iron and alumina they contained, rendering them unfit for treatment with sulphuric acid, but by this new process the soft phosphate can be manipulated as well as the hard rock.

These soft phosphates can be mined so cheaply that when they are used by the factory for obtaining phosphoric acid, commercial fertilizers can be placed on the market at one-half the present cost and still leave a handsome profit for the manufacturer, besides making a fertilizer of much greater value, for the sulphuric acid now used to make available the rock phosphates is considered injurious to the soil.

The soft phosphate deposits occur just precisely as do the brick-clay deposits at the North, and can be mined as cheaply, for after the overburden is removed—in this district not over two and one-half feet—everything that is dug from the mines will be, under this new process, merchantable phosphate.

Professor Wyatt, in his book "The Phosphates of America," places the cost of mining and preparing rock phosphate at \$500 per ton. My experience, which is practical, teaches me that as regards boulder deposits he is about correct. I am mining soft phosphate, drying and storing it at fifty cents per ton, and without the use of machinery. An additional advantage we have in mining this class of phosphate is that we can do all the work by the ton, paying so much per ton for mining and so much for drying. We use platforms and dry by the sun.

This will rapidly hasten the development of the soft phosphate deposits and bring much capital and increased population to this State, which is so steadily growing and prospering.

The two companies here keep steadily at work.

PHOSPHATE.

OFFICE MANUFACTURERS' RECORD,
BALTIMORE, November 23.

The volume of trade in phosphates during the past week has been light, and the situation in no respect changed from that of a week ago. Several sales for future delivery are reported on private terms, and prices hold about steady at the late decline. Few arrivals of rock are reported for the week, but a number on passage are ex-

pec
B.
ing
ton
are
L.
W.
sch
Va.
pha
the
rivi
rivi
Flo
Cha
pro
cen
\$5.
pro
cen
nan
few
mon
Sou
\$12
bo
an
\$30
\$1
pot
po
so
ph
fa
to
he
pr
re
\$1
pro
ta
co
ha
m
pr
T
ph
se
ca
th
T
w
T
in
2,
le
st
sa
of
G
in
pl
m
w
b
N
to
fo
th
w
e
w
li
o
d
r
th
c
s
r

pected in the next few days. The schooner B. F. Lee is at her wharf discharging 600 tons of rock from Charleston, S. C. Among the charters reported are the schooners Katie J. Ireland and L. J. Lewis for Ashley river, Willie W. Hewlett for St. Helena's sound, and the schooners Brown and Ebner for Richmond, Va.; also the schooner F. Magee, phosphate, Charlotte Harbor to Baltimore. At the close values are as follows: Ashley river \$4.50 and Charleston \$4.75 per ton; river rock, 58 to 60 per cent., \$4.50 f. o. b.; Florida rock is quoted at \$3.75 to \$4.00 for Charlotte Harbor and Tampa 60 per cent. product, and \$3.25 to \$3.75 for 50 to 55 per cent. product; land pebble is quoted \$4.50 to \$5.00 f. o. b. Tampa 68 to 72 per cent. product; Florida boulder, 75 to 80 per cent., is unchanged at \$8.50 f. o. b. Fernandina. We quote as follows:

Phosphate rock f. o. b. Charleston..... \$1 50/0.475
" " Peace river..... 4 00/0.450
" " Baltimore..... 6 00/0.700
" (ground)..... 8 50/0.900

FERTILIZERS.

The market for fertilizers is quiet, with few transactions reported. Prices under a moderate inquiry remain steady. Dissolved South Carolina phosphate rock is quoted at \$12.00 to \$13.00 per ton in bags for car lots, bone black 18 per cent. \$20.00 to \$22.00 and bone ash \$20.00 to \$22.00, ground bone \$30.00 per ton of 2,000 pounds and kainit \$11.50 to \$12.00 per ton in bags of 2,000 pounds.

PORT TAMPA, Fla., November 19.

At present this is one of the most active ports on the Mexican Gulf, and destined at some future period to be the great phosphate centre of the world. The present facilities for shipping are quite inadequate to the large amount of tonnage loading here, but the Plant Improvement Co. are progressing rapidly with their gigantic work. The work of dredging a basin will require two years to complete, and over \$150,000 has already been expended in preparing machinery for this great undertaking, which will cost over \$1,000,000 when completed. The receipts of phosphate have been very liberal during the current month, and all vessels arriving meet with prompt dispatch in loading cargoes. On Thursday last a train of thirty-two cars of phosphate coming into Tampa met with a serious accident. A journal on the fifth car from the rear of the train crashed through a trestle near the Ybor City depot. The track was badly torn up, but trains will be running regularly in a day or two. The British steamer Holyrood is now loading at the wharf, and will take out about 2,000 tons of phosphate. The Bone Valley Phosphate Co. cleared the British steamer Canton for Lynn, Eng., which sailed on Sunday last, carrying 2,000 tons of phosphate. The schooner Carrie L. Godfrey sailed for Baltimore on the 12th inst., with about 600 tons of pebble phosphate, and the L. K. Cottingham for Wilmington, Del., or Mantua Creek, N. J., with 702 tons pebble; both vessels cleared by the Bone Valley Phosphate Co. The National Peace River Co. shipped 2,408 tons pebble by the steamship Markomania for Hamburg, Germany. It is said that the Florida Phosphate Co., of Citrus county, will ship a cargo in a few days. The extensive firm of Clark, Laderan & Co., while loading a vessel last week, lost a lighter of phosphate during a violent storm on the bay.

CHARLESTON, S. C., November 23.

The general tone of the phosphate market at this and all mining points throughout the State has shown no material change during the past week. Shipments continue regular, but there is no urgent demand at the moment, and values continue unchanged at last week's figures. Sales of small parcels reported at \$3.75. Crude rock is quoted \$3.75 to \$4.00 f. o. b., and hot air dried \$4.50 to \$4.75 f. o. b. Ground

rock is quiet with very limited demand at \$7.00 to \$7.50. The exports of rock for the week were 1,230 tons to New York, and to Cartaret, N. J., per schooner Thomas A. Ward, 1,110 tons. Freights are dull and nominal, and rates are unchanged at \$2.25 Ashley river to New York, Richmond, Va., \$1.90 and Baltimore \$1.80. The following table, prepared by Mr. Paul C. Trenholm, shows the shipments of phosphate from this port for the month of October of the years 1891 and 1892.

SHIPMENTS OF PHOSPHATE ROCK FROM CHARLESTON, S. C., OCTOBER, 1891 AND 1892.

Domestic.	1891.		1892.	
	Crude.	Ground	Crude.	Ground
Baltimore.....	3,375	.....	5,180	.....
Philadelphia.....	1,750	.....	3,901	876
Weymouth.....	850	.....	742	876
Barron Island.....	2,350	.....	1,575	.....
Mantua creek.....	510	.....	601	.....
Wilmington, N. C.....	1,457	.....	552	.....
Wilmington, Del.....	.....	.....	1,225	.....
Elizabethport.....	.....	.....	900	.....
Alexandria, Va.....	.....	.....	2,666	1,324
Richmond, Va.....	.....	.....	300	.....
Savannah, Ga.....	.....	.....	510	.....
Orient, L. I.....	.....	.....	496	.....
New Town ck.....	.....	.....	500	.....
Cooper's ck, N. J.....	.....	.....	1,225	.....
Cartaret, N. J.....	.....	.....	1,457	.....
Seaford, Del.....	.....	.....	2,350	.....
S. C. R. R.....	.....	.....	600	.....
C. & S. R. R.....	.....	.....	1,372	.....
N. E. R. R.....	.....	.....	852	1,129
Foreign.....	18,885	.....	18,627	876
Liverpool.....	100	.....	.....	.....
Grand total....	18,985	.....	18,627	876

The following table represents the exports of crude rock and ground from the port of Charleston, S. C., from September 1, 1892, to November 19, 1892, and for the same time in 1891:

Destination.	1892-93.		1891-92.	
	Crude.	Ground	Crude.	Ground
Baltimore.....	10,910	.....	13,056	.....
Philadelphia.....	5,961	.....	4,725	.....
Boston.....	.....	.....	747	.....
Elizabethport.....	.....	.....	1,078	.....
Wilmington, Del.....	.....	.....	1,078	.....
Barren Is., N. Y.....	.....	.....	1,085	.....
New York.....	2,682	876	2,300	688
Mantua creek.....	1,310	.....	3,530	.....
Weymouth.....	5,330	.....	3,225	.....
Richmond.....	3,197	.....	2,666	.....
Seaford, Del.....	600	.....	600	.....
Newton ck, N. J.....	.....	.....	1,078	.....
Wilmington, N. C.....	665	.....	450	.....
Orient, L. I.....	.....	.....	.....	.....
Other ports.....	2,790	.....	1,670	300
Total exports.....	32,702	876	30,885	1,735
Foreign ports...	175	.....	100	.....
Grand totals...	32,877	876	30,985	1,735

FERTILIZERS.

The fertilizer market is fairly active with prices steady, and the demand moderate. Acid phosphate in bulk is quoted at \$9.50 to \$9.75, and inspected, in bags, at \$11.25. Ammoniated inspected is held at \$18.00 for 2 1/2 per cent., \$17.00 for 2 per cent. and \$16.00 for 1 per cent for future delivery.

FERNANDINA, Fla., November 16.

Phosphate matters are at present quite interesting here, and the volume of business in this industry is showing a remarkable increase over last year. The general business of the port is in a more healthy condition than the corresponding date last year, and a steady growth has been the rule during the current year. The improvements in progress will, when completed, add greatly to the commercial facilities of the port, and new enterprises are cropping up occasionally, showing a strong spirit of enterprise present. A new enterprise involving an outlay of \$60,000 is contemplated, particulars of which are withheld for the present. This port has been selected on account of its convenience for foreign transportation, and if arrangements are consummated the enterprise will add greatly to our foreign exports and will demonstrate the advantages of Fernandina for direct trade with Europe. Facilities for shipping are being every day improved in some shape, and an addition of 260 feet has been made to the phosphate platform,

giving it a total length of 570 feet. The shipments so far this month have been quite large. The Dunnellon Phosphate Co. shipped 2,200 tons hard rock last week per steamship Preston for Rotterdam, Netherlands, and B. Arentz & Co. 914 tons hard rock per barkentine Darwin for Swansea, England.

OCALA, Fla., November 19.

Everything in and around this enterprising city has taken on of late a decided activity, and there is a general increase of volume in business in almost every industry throughout this county and section of the State.

The phosphate interests of Marion county are attracting special attention, and from nearly all sections of the mining district of the State a better and more cheerful tone is present. At Kendrick, Fla., Captain Anderson gives an encouraging account of the operations of his firm. Their shipments are nearly all to Virginia, and they have declined orders on several occasions, having more than they can well handle. The firm are erecting two new plants, which will increase their output to 120 tons per day. The Standard Phosphate Co., in Marion county, west of Blitchton, on the line of the Archer Railroad, have about completed their improvements, which will enable them to keep up with their orders. At the company's mines Nos. 2 and 3 their improvements consist of two more washers, a steam hoist, the laying of tracks into the mines and the substitution of cars for wheelbarrows. No. 4 mine will shortly be opened and equipped, which will make their total output about 150 tons per day. The Floral City Phosphate Co. are employing over 100 hands, and are selling all the phosphate they can mine, which they forward to Tampa. The Chicago-Florida Company are doing good work near Blitchton in opening their mine and making switch connections to put in machinery and get out rock. Several of our brokers are expecting their vessels, and will load cargoes on their arrival at Tampa. Judge Finley heard the case of Metcalf against Whitfield on Thursday last. The parties interested are owners of the Eureka Phosphate Mining Co., in Levy county. While there is an improvement in phosphate in this section, there are a number of industries seeking a place in our thriving city, and every now and then a timely enterprise is established.

LONDON, ENGLAND, November 13.

The phosphate market during the past week has not materially changed, and we cannot note any decided improvement. The outlook at present is not encouraging, and, both here and in the continental markets, values show a slightly weaker tendency. A very light volume of transactions has been recorded during the week, and at the close there has been a few important deals closed. The quotations to-day are as follows: Florida hard rock, guaranteed 75 to 80 per cent., is a shade weaker than last sales, although figures are not quotably lower than 8 1/4 d.; Florida land pebble, guaranteed 70 per cent., 7 3/4 d., and river rock, 60 to 65 per cent., 6 1/2 d. South Carolina rock, 55 to 60 per cent., is quoted at 6 d. to 6 1/4 d.

Phosphate and Fertilizer Notes.

THE EXCELSIOR Phosphate Co., near Bartow, Fla., is making improvements on a

mammoth scale, which, when completed, will comprise one of the most perfect and complete plants in the State. The dryer and storage bins will be on the South Florida Railroad about one mile and a-half north of the city, at which point about 1,000 feet of siding has been laid for convenience. The company has a dredge in Peace river about half a mile from the railroad, and a canal capable of floating the dredge and lighters is to be cut from the river to the railroad siding. The dredge is similar to those used on the lower Peace

river, except that it is larger and of greater capacity, being supplied with a 10-inch centrifugal pump capable of discharging 8,000 gallons of water per minute, and has in addition a powerful force pump which will disintegrate the phosphate pebble as the centrifugal pump takes it up. The company has introduced all the most modern appliances, and the boilers, engines, etc., are of the best construction and of great capacity. Superintendent McKee expects to have the dredge at work by the 1st of December, and thinks it will excavate the canal in sixty days. The deposit to be worked is land pebble.

THE shipments of phosphate from Punta Gorda, Fla., by the Charlotte Harbor Phosphate Co., for week ending November 12, were as follows: Schooner Lizzie M. Eells for Mobile from Charlotte, 132 tons; British bark King Alfred for Garston, Eng., 1,900 tons, and the British bark Chittagong for Leith, Scotland, with 1,550 tons of pebble.

PRESIDENT BALDWIN and Secretary Rogers, of the Marion Phosphate Co., passed through Ocala last week on their way to Dunnellon to test their new machinery, when they will commence operations on an extensive scale.

THE Bone Valley Phosphate Co. has changed its postoffice address from Lakeland, Fla., to Bartow.

THE British steamer Angerton, from Cienfuegos, Cuba, was reported at Key West, Fla., on the 16th inst. bound to Charlotte Harbor to load 2,000 tons of phosphate and finish loading cotton at New Orleans for Harwick, England. The schooner Thomas M. Stone was also reported at Key West awaiting orders to sail for Charlotte Harbor to load phosphate for New Orleans.

IRON is being laid on the Homeland Pebble Phosphate Co.'s railroad from the works to Homeland, Fla. Mr. Oakley Lanier is superintending the work, and the track will soon be ready for the cars.

ON the 16th inst. the water tank and framework that surrounds and supports it at the Bartow Phosphate Works near Bartow, Fla., was discovered to be on fire, the woodwork having ignited. A strong wind was blowing at the time, but the firemen did good work and subdued the flames before much damage was done. The buildings were not injured, and the damage to the water tower will not exceed \$300. The fire will cause no interruption to business at the works. The company has sold in advance of production, and is now busy on Eastern orders.

THE Florida Phosphate Co., of Citrus county, is getting ready to ship another cargo of phosphate via Tampa about the 25th inst.

IT is said that the rock mines of Citrus county have suspended operations for the present and will not resume until prices of rock improve.

CONTRACTOR JAMES L. MCGRIFFIN, of Fernandina, Fla., has just finished building an addition 260 feet long to the phosphate platform, which, with the 310 feet previously built, gives 570 feet in all. This will afford berth accommodation for two large steamships, including elevator accommodations for one.

THE Coal Creek Mining & Manufacturing Co. met in Knoxville last week and elected the following directors for the ensuing year: E. J. Sanford, J. G. Moore, C. M. McGhee, H. W. Cannon, Calvin S. Brice, J. H. Inman, D. A. Carpenter, Samuel Thomas and E. R. Chapman. Reports were read and adopted.

ARRANGEMENTS for the erection of a cotton mill at Roanoke are progressing so

favorably that the Board of Trade expects to complete the organization of the company in a few weeks, so the secretary, H. M. Anderson, writes us.

IRON INDUSTRY.

Prospects for Making Southern Steel.

In a letter addressed to Col. A. S. Colyar, of Nashville, Tenn., by A. M. Shook, president of the Southern Iron Co., the latter, after referring to the efforts of Colonel Colyar and others, which have resulted in the growth and development of the coal and iron interests of the South, calls attention to the conditions which surround this industry at the present time. Twenty years ago, he says, the manufacture of steel in the United States was practically an untried experiment. The whole product of the furnaces was either sold for foundry purposes, or puddled and sold in the form of rails, bars, etc. With the introduction of the Bessemer process for the manufacture of steel a new element was injected into the iron business. At first, while the price was very high, the manufacture of steel did not spread rapidly, for the reason that, in addition to its high cost and the large amount of capital required to successfully manufacture steel, the area of the then known steel ores was limited. Notwithstanding these facts, the superior quality of steel for all purposes as compared to wrought iron was so patent that the manufacturers in the North, who had the foresight and money to appreciate this fact, prosecuted its development until to-day they are able to produce a ton of steel at a less price than they can produce a ton of bar iron.

The effect of this upon the present and future development of the iron industry in the South is important. Southern irons are now nearly all marketed north of the Ohio river. If the ores were sufficiently low in phosphorus to admit of the manufacture of Bessemer steel, the South would be at no disadvantage as compared with other sections of the country, but it is an admitted fact that, with only a few exceptions, the ores are not suited for this purpose. The revolution from iron to steel is going on in a steadily increasing ratio, and consumers all through the United States and other countries are demanding manufactured steel where they formerly used iron. Confronted with these conditions, it is of infinite importance that the South should turn its attention to the manufacture of steel.

If steel-making in the South was not feasible it would be useless to call attention to the importance of the matter, but in Chattanooga steel has been manufactured on a scale sufficiently large to demonstrate that with a plant producing from 300 to 500 tons per day large returns are assured. The difference between the cost of producing pig iron in Birmingham and Pittsburgh is about \$4.00 per ton in favor of the former. If steel is manufactured by either the acid or basic-Bessemer process, this margin of difference in the cost of pig iron will enable the manufacturer to meet any increase in expense incident to the duplex process and still produce his steel for less than it can be done in Pittsburgh with the same character of plant and equipment. If the basic open-hearth is employed there is no reason why the Southern manufacturer cannot produce a ton of ingots as cheaply as is done in the North, and this process is the one from which the best results are likely to be obtained.

In the past two obstacles have prevented the manufacture of open-hearth steel in the South—one, the presence of an excessive amount of silicon in the iron, and the other, the absence of scrap. Both of these obstacles have been removed by the Talbot process, which thoroughly removes silicon.

These facts lead to the belief that there is no reason why the South should not commence to convert a large percentage of its pig iron into steel, except a lack of enterprise or the admission that there is not

sufficient ability to do what others have done in England, France and Germany, and what is now being done north of the Ohio river. That it will take a large outlay of money to construct and operate a plant of sufficient capacity to do this work is admitted, but while this is true, the returns would be so great to the section making the investment that it is confidently asserted that any large railroad system traversing the iron district, or even the cities of Chattanooga or Birmingham, could afford to build a steel plant with a capacity of 500 tons per day and give it to a man to operate, while the profit on the investment would come from the increase in population and large number of manufacturing establishments which would inevitably seek location near such works.

It would also give the small manufacturer the materials that would enable him to come South and locate where he could get all the material necessary for the manufacture of almost any given article within such close proximity as to not only defy competition from points outside this section, but enable him to ship his products to outside markets. The transportation charges alone on the heavier articles would yield a good profit upon the investment. The lighter products, which always give employment to the greatest amount of skilled labor, could be shipped to more distant markets, although taxed with the additional transportation charges, and the producer compete successfully not only in all the markets of our own country, but in the near future do a large export business through our Southern ports.

The demand for such a plant is so imperative and the benefits to accrue are so great that it seems incomprehensible that some united effort is not made in this direction. In concluding his letter Mr. Shook asks the co-operation of Colonel Colyar in stimulating people to action on this important subject.

Southern Iron Notes.

COL. THOMAS SHARP, of Nashville, and associates have obtained a lease of the North Alabama Furnace at Florence, and will make necessary repairs to same and put it in blast about the first of the year. To carry out their plans, which include the development of ore banks at Iron City, Tenn., they have organized the Spathe Iron Co. with the following board of directors: H. W. Buttorff, Jas. L. Gains and Thos. Sharp, of Nashville; F. B. Nichol, Bessemer, Ala., and Oscar Marschuetz, of Louisville, Ky. Thos. Sharp was elected president, and H. W. Buttorff, secretary and treasurer.

THE Southern Brass & Iron Co., of Knoxville, Tenn., has accepted its charter and elected Peter E. Blow, president; W. H. Thomas, vice-president, and E. T. Manning, secretary, treasurer and general manager.

THE Lookout Rolling Mill, at Harriman, Tenn., made a remarkable run on the 9th inst. by turning out 74,071 pounds of $\frac{3}{4}$ -inch round iron. It is an 8-inch mill. The company has just received an order for the shipment of 1,500 tons of car iron.

THE Roane Iron Co., of Rockwood, Tenn., has authorized the issuance of \$350,000, the proceeds to be used in the construction of new iron furnaces and coke ovens.

THE South Boston Iron Works has contracted with the Norfolk & Western Railroad for the shipment of 140 carloads of machinery from Boston to its new plant at Middlesborough, Ky.

THE Philadelphia furnace at Florence, Ala., the property of the Florence Cotton & Iron Co., was put in blast on the 19th instant.

THE Campbell's Creek Coal Co., of Malden, W. Va., is about to test electric haulage in its old mines on Campbell's creek.

Improvement of Coke.

[From the *Engineering and Mining Journal*.]

The increasing demand for better coke is reacting upon the producers of bituminous coal in a manner at once surprising and gratifying. It is surprising in that it comes so late into action, and gratifying in that it comes at a time when it is much more sure of a careful consideration than at any time, perhaps, within the past ten years. The economies that have in a measure been forced upon the producers of pig iron have extended to every department of the industry, so that it is probable that at the present time pig iron of all grades is being made more cheaply than ever before in the history of the country. This has been brought about partly by the natural desire of manufacturers to limit their expenditures as narrowly as possible, and partly by the low prices that have prevailed during the last two years. The economies practiced have arisen, therefore, in part voluntarily and in part through outside pressure.

Manufacturers of pig iron are demanding and securing a better quality of ore, and lower transportation rates and lower furnace charges per unit of iron are the consequences. They are demanding and securing greater skill in the management of furnaces, and the betterment of the quality of the iron is the consequence. But in the fuel employed there has not been so marked an improvement. We do not speak of anthracite furnaces nor of those using the higher grades of coke, such as Connellsville and Flat Top, but of those which are cut off by reason of freight charges from all but second grade coke, and even third grade in a few cases.

Coke that contains on the average over 1 per cent. of sulphur and 10 per cent. ash cannot be considered strictly first grade, no matter what its burden-carrying capacity may be, whether 400 pounds per square inch or 1,000. Its use is attended with increased cost, whether we look at the matter from the standpoint of the chemist or that of the furnaceman. It may be stated as an axiom that the greater the content of sulphur and ash the greater the cost of the coke.

Physical betterment of the coke, occasioned by the pulverization or crushing of the coal previous to coking, increases its value. Such improvement is not to be despised, especially in coke destined to much transportation or breaking of bulk. The ash-producing parts of the coal are more evenly distributed through the coke; there is less danger of powdering, as the coke is firmer and stronger, and when it breaks it does so in pieces of more uniform size.

What may be termed "overheating," that is, coke burned past the point at which combustible matter is given off, which for most coking coals is forty-eight hours in the beehive oven, sometimes increases the resistance of the coke to crushing strain without otherwise affecting it, so far as was observed. In one case before us the 48 and the 72-hour coke made from the same coal, of the same degree of fineness, showed a difference of 400 pounds per square inch in crushing strain in favor of the 72-hour, while there was scarcely any difference in chemical composition. The 48-hour withstood 700 pounds and the 72-hour 1,100 pounds crushing strain per square inch. In this case there was no gain in continuing the coking process beyond forty-eight hours, as a coke that will stand 700 pounds per square inch crushing strain is quite strong enough for any ordinary purposes. Indeed, it may be said that an improvement in the physical quality of coke as regards crushing strain, that is, to bring it above 500 pounds, need not be considered.

Of the dry methods for improving coke, the only one that seems to be worthy of

attention is the pulverization of the coal. A company operating more than 450 beehive ovens informs us that since it began to pulverize the coal to the fineness of meal there has been a marked improvement in the coke, not so much in chemical composition as in structure, a very important item. Then again, it has been observed that the coking quality of a coal is improved by fine crushing. Some coals that coke badly when charged as "run of mine" or even as "slack" are greatly improved by crushing. This would be the case particularly with slaty or dirty coal, as the comminution of the particles would allow the bituminous or coke-causing ingredients to sinter the mass more firmly together. It must be borne in mind, however, that crushing does not remove any impurities from coal. All that is done is to better the structure of the coke. This is very important, but does not affect the fundamental question of purer fuel.

Coal and Coke Notes.

THE extensive coal mines being opened at Buckhannon, W. Va., will for the present be operated to supply local demand. Mining for shipment will be introduced later on.

MR. S. B. CORBETT proposes a thorough development of the 200 acres of coal lands lying between Capon Springs and Winchester, Va., which he has purchased.

The Belington (W. Va.) Coal & Coke Co. is preparing to build its 100 new coke ovens near Belington.

A NUMBER of capitalists connected with the Cape Fear & Yadkin Valley Railroad propose developing coal mines at Coal Creek, west of Richlands, Va.

THE Poplar Creek Coal Co. met at Knoxville last week and elected Messrs. E. J. Sanford, C. Cullen, S. B. Luttrell, T. H. Heald and E. R. Chapman as directors. E. J. Sanford was elected president, and T. H. Heald, secretary and treasurer.

THE Norton Land & Improvement Co. is developing a coal mine near Norton, Va., and will by the early spring have it in full operation, employing 300 men.

COL. J. H. ALLEN, of Kentucky, is preparing for the early development of the 2,500-acre tract of coal land which he recently purchased near Norton, Va. A battery of 100 coke ovens he expects to complete by April.

THE exports of coal from the port of Norfolk, Va., from January 1, 1892, to November 17, 1892, as cleared by William Lamb & Co., agents at Lambert's Point, were as follows: Foreign exports 2,054½ tons, coastwise 30,053½ tons; total for week ending the 17th, 32,108 tons. Total amount to November 17, 1892, inclusive, was 1,402,170 tons.

CAPITALISTS of Superior and Duluth have purchased 55,000 acres of coal lands in Kentucky from Proctor Knott and associates and propose an extensive and thorough development of the property immediately. The company to be formed will have a capital stock of \$10,000,000, and Mr. C. K. Lawrence, of Superior, Wis., will superintend the work of development. Docks are to be built at Superior and a distributing point for coke established.

THE Mobile (Ala.) Transportation Co., which was organized some time ago, will soon commence the construction of extensive docks having slips 300 feet long. The company's property includes about 1,000 feet of water front in Choctaw swamp with a depth of twenty-four feet. Contracts for large shipments of coal to Vera Cruz have already been made, and the company has had plans prepared for a fire-proof bonded warehouse and coal chute of 40,000 tons capacity daily. The construction of a belt line of railroad is included in the company's plans. Mr. C. L. Huger is president of the concern, and Mr. A. W. Swanitz, of Chicago, consulting engineer.

RAILROAD NEWS.

[A complete record of all new railroad building in the South will be found in the Construction Department, on pages 346 and 347.]

Baltimore & Ohio.

The annual meeting of the stockholders of the Baltimore & Ohio Railroad Co. was held in Baltimore on November 21. All the directors were re-elected without opposition, and President Mayer will undoubtedly be re-elected when the board meets on December 31. The sixty-sixth annual report of the company was submitted. The fiscal year of the company now terminates on June 30 instead of September 30, and figures are given by the report covering the nine months ended June 30 and the year ended September 30. The total mileage of the system is 3,323.78 miles, of which 1,072.11 miles are west of the Ohio river. Included in the mileage are 721.31 miles of sidings and 603.07 miles of second, third and fourth tracks. The operations for the twelve months ended September 30, 1892, show total earnings of \$26,034,167.76, an increase of \$1,503,772.85 over the previous year. The total expenses for the same period were \$18,595,801.14, an increase of \$1,517,568.28, and making net earnings of \$7,438,366.62, a decrease of \$13,795.43. The available income, which excludes the net earnings of the Washington branch, for the year was \$9,098,941.34, an increase of \$577,668.93. The interest, rentals, taxes and other charges for the year amounted to \$6,639,222.17, an increase of \$210,124.33, leaving a balance of \$2,459,719.17, which is \$367,544.60 more than the same figures of the previous year. This balance was devoted to the payment of dividends on the preferred and common stock, aggregating \$612,428.75, and the retiring of bonded indebtedness to the amount of \$674,057.81, leaving a surplus of \$1,173,232.61. The tonnage for the year with September estimated was 15,657,596, against 14,858,972 for 1891. The statement of the entire funded debt of the system shows a total issue of \$84,653,224 of bonds. The interest payable for the nine months amounts to \$3,261,970.08, which figures, however, do not include \$4,274,000 of Baltimore & Ohio consolidated mortgage bonds. The sinking funds aggregate \$11,490,188, which makes the net bonded indebtedness of the entire system \$73,163,036. The net cash outlay for interest on funded debt for the nine months ended June 30 was \$3,971.425.88. The company expended during the year \$2,061,604.04 for construction and betterments, an increase of \$459,702.88 over 1891. This large expenditure is in accordance with the policy of the management to establish and maintain its lines on a high standard of excellence.

An Important Railroad Project in the Southwest.

The preliminary work for an important line of railway has lately been undertaken in the Southwest, having in view the opening up of the rice lands of Southeastern Texas and the long-leaf pine country of that section and Southwestern Louisiana.

The railway is intended to start from the shore of Galveston bay, opposite the city of Galveston, and extend to Alexandria, La.

The country to be traversed for the first seventy miles is susceptible of being made one of the richest fruit and rice countries in the South, being a rich arable prairie country now filling up rapidly with rice and fruit growers. Attention to it has been drawn more particularly this year by the extraordinary yield of rice to the acre, which is causing a large influx of rice planters from the lower parishes of Louisiana. An idea of the rapid increase in the production of this staple may be obtained when it is considered that the city of New Orleans estimates

this year's receipts at not less than 2,000,000 sacks of that important product, the milling and jobbing of which is now one of her most remunerative industries. The merchants of Galveston, recognizing the capabilities of this new section, propose to occupy the territory with the road in question with a view to controlling the trade. Beyond the rice district, on its way to Alexandria, the proposed road would penetrate the celebrated long-leaf pine forests of the Sabine river district, passing through the counties of Jasper and Newton, in Texas, and through the parishes of Calcasieu, Vernon and Rapides, in Louisiana. The estimated amount of long-leaf pine now standing in that country is in the neighborhood of nine billion feet B. M. There is besides a large supply of the finest white oak and other woods suitable for furniture to be had on the streams, as well as a large supply of cypress.

The connection at Alexandria would, it is stated, give the most direct and shortest route between Texas and Mexico and the large cities of the East. It would, no doubt, be an important link in a through connection between the points named upon the completion of the road now partly built between Natchez and Alexandria. A reconnaissance of the route has just been completed, and we understand the engineer's report is quite favorable to the project. As Galveston is wealthy enough to build the road herself, if she so desires, it is expected to see early action taken, the merchants being desirous of handling the large rice crop in sight and of making their city an export point for this vast body of long-leaf pine lumber which this road would develop.

Richmond & Petersburg Annual Meeting.

The annual meeting of the Petersburg Railroad stockholders was held at Richmond, Va., on November 21. The report of the president made the following financial exhibit: Gross earnings for the year, \$532,462.51; expenses, \$296,607.10; net balance, \$235,855.41.

After the meeting of the Petersburg stockholders the Richmond & Petersburg stockholders had their annual meeting. The report of the president made the following showings of receipts and expenditures: Gross receipts from transportation, \$360,447.73; operating expenses, \$243,150.22; net receipts, \$126,297.51; rents and interest received, \$9,020.02; total, \$135,317.53; net surplus, \$28,717.53. The sum of \$49,057.29 was expended for new property. Fred R. Scott was re-elected president, and H. Walters, vice-president, with the following board of directors: W. T. Walters, Henry Walters, B. F. Newcomer, Dr. D. W. Lassiter and W. G. Elliott. The board of directors were authorized in their discretion to build a double track between Richmond and Petersburg. The board elected W. R. Jones, treasurer, to fill the vacancy caused by the resignation of M. W. Varrington.

A New Southern System.

There has been for some time a movement under way for the amalgamation of four Southern roads, and by the building of several links a new railroad system would be formed in the South. The plan has been engineered by Newman Erb, receiver of the Kansas City, Wyandotte & Northwestern Railroad, and a young railroad man of recognized ability. The plan provides for the consolidation of the Chattanooga Southern, Marietta & North Georgia, Knoxville, Cumberland Gap & Louisville and the Morristown & Cumberland Gap roads under the name of the Tennessee, Alabama & Georgia Railway. Mr. Erb has made substantial progress with the movement, and among those named as interested are H. A. V. Post, of New York City, who is chairman of the reorganization

committee of the Marietta & North Georgia; Thomas Carmichael, of London; Walter Stanton, of New York, and E. E. Dennis, of Philadelphia. A majority of the bonds and stock of the Marietta & North Georgia have been secured and it is intended to extend this road from Marietta to Atlanta. The Morristown & Cumberland Gap is to be built from a point near Tate Springs, Tenn., to a connection with the Norfolk & Western at Bristol, Tenn., and the Chattanooga Southern is to be extended from Gadsden to Birmingham, Ala. The Marietta & North Georgia is also to be extended to Chattanooga, according to the plan, the extension starting from Twin City, Tenn. The committee which has the work of reorganizing the Marietta & North Georgia announces that the reorganization plan has become effective. With the exception of the Knoxville, Cumberland Gap & Louisville, the roads that are to make up the new system are in the hands of receivers, and the carrying out of this plan will, it is believed, make what are now poor-pay roads into a very profitable system. Its terminal points would be Birmingham, Chattanooga, Atlanta, Bristol, Morristown and Middleboro, from which cities connections could be arranged for all places North, East, South and West.

Railroad Notes.

APPLICATION has been made to the Chancery Court at Chattanooga, Tenn., for a receiver for the Dunlap Coal, Iron & Railway Co., which was incorporated in 1890 with a capital stock of \$50,000.

THE early construction of the line of railroad from Savannah, Ga., to Hart's Roads, Fla., which is to connect the Florida Central & Peninsular with its recently-leased property, the South Bound, seems assured, and it is stated that contract has already been let. By the acquisition of the South Bound and the building of this link the Florida Central establishes a new air line from the North to the South via Columbia, S. C., Savannah and Jacksonville, Fla.

THE Norfolk & Western's outlay for new equipment for the current fiscal year will, it is stated, approximate \$3,000,000, but notwithstanding this large increase, the increase of traffic still keeps ahead of its facilities. The lengthening of the company's lines will require more trains, and the ordering of more cars and more engines is now being considered.

It is stated that a statement as to the cost of building the line which has been surveyed from Wadesboro to Winston, N. C., by the Atlantic Coast Line will be submitted at a meeting of the officers of that system to be held on November 22.

A GENERAL meeting of the stockholders of the Atlantic & Danville Railway Co. will be held at the office of the receiver in Portsmouth, Va., on December 20.

THE suit of S. Thomas, of New York, against the Mobile & Birmingham road for debt, was dismissed in the chancery court at Mobile, Ala., and the receiver, T. G. Bush, discharged. Immediately after, however, the Central Trust Company of New York filed a bill in chancery to foreclose the mortgage of the Mobile & Birmingham road, amounting to \$4,500,000, on the ground of its failure to pay the interest on the bonded debt. Mr. Bush was again appointed receiver.

At the annual meeting of the stock and bondholders of the Port Royal & Augusta, recently held, H. M. Comer was re-elected president, and Ed Workman, secretary.

THE freight car famine is still being experienced in the South, and the calls for cars from cotton shippers, lumbermen and coal mines cannot be complied with.

AT a meeting of the stockholders of the Owensboro, Falls of Rough & Green River Railroad, held at Owensboro, Ky., on No-

vember 12, a resolution was adopted authorizing the directors to issue \$6,000,000 of 50-year gold bonds to build the road to Middlesborough, Ky.

A JACKSON (Miss.) dispatch says: "Judge Miles, of the United States Circuit Court, has decided that the Georgia Pacific Railroad must pay the State of Mississippi \$75,000 in back taxes. The suit was brought by the State revenue agent in the State courts, but the road's attorney had the case transferred to the United States Courts."

THE Missouri, Kansas & Texas, when it absorbed the property of the Parsons & Pacific Railroad Co., secured a charter held by that company to build a railroad from Coffeyville, Kan., diagonally across the Indian Territory to Vernon, Texas, a distance of about 300 miles. It is now reported that the company will utilize this charter and commence the construction of this line early next year.

TRAFFIC arrangements have been made by the Chicago, Rock Island & Pacific with the Houston & Texas Central which provides a new all-rail route from Chicago to the Gulf. The traffic is to be interchanged at Fort Worth, where additional terminals will be built.

Mexican Notes.

THE purchase by C. P. Huntington of the Durango (Mexico) iron ore property, with the charcoal furnace and other works, is an earnest that extensive improvements and developments will be made there. Controlling, as he does, the Mexican International Railroad, the iron deposits of Durango and valuable coal fields near Piedras Negras, he will have every opportunity of building up an extensive iron and steel industry. Besides this important commodity, Durango is well located for other classes of industrial work, and is not far from important silver mines. Tin, it is said, has been found near there, though the prospecting was not thorough enough to prove its quantity. Besides the wealth in its soil, Durango has a delightful climate, and owing to its elevation, a most healthy one.

* * *

H. C. RIPLEY, of Galveston, Texas, who has recently returned from Tampico, Mexico, says that work on the jetties at Tampico is nearly completed. They are about 1,000 feet apart, and the volume of water discharging between scours the river-bed so as to make the channel deep enough for ocean steamers. Surrounding the city there is a great deal of marshy land, but this will be drained, and when done the trouble from malaria will be greatly reduced.

* * *

SPEAKING of the City of Mexico, Mr. Ripley says it lies in a saucer-like depression surrounded by mountains and hills. This location once was the site of a lake, and the city was on an island in its centre. This basin is about sixty-five miles by twenty-five on an average. There is being built through one of the hills an immense tunnel about a mile in length. This tunnel is through solid rock. Its purpose will be twofold—it will be used to carry the sewage and waste water of the city and will be a relief against floods. Back of the city, and not many miles distant, are two lakes, one higher up among the hills than the other. When the highest one gets full and overflows the water runs into the one below. When the other lake overflows it floods the city. A canal is being built from the lower lake so that at a certain stage of the water the overflow will run through this tunnel now being built, thus relieving the city from all danger. It is a big undertaking.

MESSRS. CARRIER, MOISEN & CO., of Brookville, Pa., have leased and will operate the entire plant of the Watauga Boom & Lumber Co. at South Watauga, Tenn.

Manufacturers' Record.

PUBLISHED EVERY FRIDAY BY THE
Manufacturers' Record Publishing Co.
MANUFACTURERS' RECORD BUILDING,
Lexington and North Streets,
BALTIMORE.

EDWARD H. SANBORN, Managing Editor.
THOMAS P. GRASY, Special Southern Correspondent.

WESTERN OFFICE—535 and 537 The Rookery,
Chicago, Ill.
CLARENCE P. DAY, Manager.

NEW YORK OFFICE—126 Liberty Street,
F. W. ROLLINS, Manager.

NEW ENGLAND OFFICE—952 Exchange
Building, Boston.
S. J. CARPENTER, Manager.

FOREIGN AGENT—REUTER'S TELEGRAM CO.,
LIMITED, London.

Reuter's Telegram Co., Limited, of London, are the authorized foreign agents for the MANUFACTURERS' RECORD. Foreign advertisers are referred to the various Reuter offices in England, on the Continent, in the Colonies and other parts of the world for rates of advertising. Contracts should be placed and payments therefor should be made through Reuter's Telegram Co., Limited.

SUBSCRIPTION, - - - - - \$1.00 a Year,
TO FOREIGN COUNTRIES, - - - - - 26s. 6d. a Year.

The first issue in each month will be mailed for One Dollar per year to subscribers in the United States, or Eight Shillings to foreign countries in the Postal Union.

BALTIMORE, NOVEMBER 25, 1892.

Notice to Advertisers.

The last forms containing advertisements are closed on Tuesday afternoon. New advertisements or changes should be received not later than Tuesday noon to ensure attention in the issue bearing date of the following Friday. Reading matter should be in our office on Wednesday, although late news can be received early Thursday morning.

THE Southport grain elevator near New Orleans has been turned over by the builders to the Illinois Central system, which includes the Yazoo & Mississippi Valley road. The completion of the additional elevator gives the Southport plant a total grain storage capacity of 500,000 bushels. With the new plant five cars of grain can be unloaded at a time, and the delivery to the steamers can be carried on while the unloading is in progress. The elevator can easily deliver 8,000 bushels per hour. The original elevator of the Mississippi Valley at Southport had only a capacity of 200,000 bushels, so that the additional house will enable both the Memphis roads in the system to greatly increase their business.

HERE is an interesting paragraph which is now going the rounds credited to the *Omaha Bee*:

There are twenty well-built towns in Kansas without a single inhabitant to waken the echoes of their deserted streets. Saratoga has a \$35,000 opera-house, a large brick hotel, \$20,000 school-house and a number of fine business houses, yet there is nobody even to claim a place to sleep. At Fargo a \$20,000 schoolhouse stands on the side of the hill, a monument of the bond-voting craze. A herder and his family constitute the sole population of what was once an incorporated city.

Agriculture alone will not give stable support to many prosperous towns. There is need for something more substantial than fertile soil and favorable climatic conditions. A season of bad crops means ruin, and a year of superabundance means low prices and depression. The greatest stability is afforded by diversified manufacturing interests,

which furnish constant activity and a large consuming community.

WE find in one of the Columbia (S. C.) papers some very interesting figures of the agricultural products of South Carolina, which are furnished by Capt. Angus P. Brown, formerly of the State agricultural department and now of the weather bureau. Captain Brown gives the estimated crops for 1890 and 1892 as follows:

	1890.	1892.
Cotton, bales	683,340	521,376
Corn, bushels	16,462,416	22,110,626
Rice, pounds	68,093,944	107,368,860
Wheat, bushels	579,745	1,139,502
Oats, bushels	3,867,070	4,634,766
Cane, sugar, gallons	549,291	873,000
Sorghum, gallons	822,378	1,161,680
Sweet potatoes, bushels	3,465,749	6,324,123
Peas, bushels	935,811	953,000
Irish potatoes, bushels	828,620	1,312,000

The tobacco crop for 1890 is not given, but the crop for 1892 is placed at 3,530,400 pounds, the acreage being increased from 1,283 acres in 1890 to 4,413 acres in 1892. Cotton is the only crop that shows any reduction, but the smaller crop of this season will be worth more in the aggregate and also yield a larger profit to the planters than last season's crop. The large increase in corn, rice, wheat and oats means a great deal to the people of South Carolina, and it shows how rapidly they are becoming self-reliant and independent of the West.

The Profit of a Smaller Cotton Crop.

Since September 1 the price of cotton has advanced two and one-half cents per pound, from seven cents to nine and one-half cents for middling upland. This means that in nine weeks the cash value of this season's cotton crop has increased \$87,500,000, reckoning upon a yield of about 7,000,000 bales, which is now regarded as a liberal estimate. Less than one-third of this season's crop has been marketed, and as there is prospect of an advance to ten cents or above, the present price probably represents a fair average for the entire crop. If this be the case, and the assumption is conservative rather than extravagant, the 7,000,000 bales of this season's crop will sell for nearly as much as the 9,000,000 bales produced last season. The average price during last season was seven and one-half cents, making the entire crop worth \$337,500,000, while at an average of nine and one-half cents the 7,000,000 bales of this season will be worth \$329,000,000. But the value of this season's crop represents far greater profit to the planters than the proceeds of last year's work, for the present crop has been raised at less cost than any crop produced since the days when labor was counted as nothing.

Nor is this the full measure of the benefit that the South is reaping from the cotton crop of this season. The present crop has been produced by about 2,500,000 acres less than was required to raise the crop of last year, and the immense acreage withdrawn from cotton is being cultivated for other crops. More corn, more wheat, more sugar and more rice are being raised in the South this year, which means more cash, by reason of less expenditure for food. With a cotton crop equal in value to that of last year, the South will gain the yield of 2,500,000 acres of additional food crops, besides a great increase in

sugar and rice. This is the most encouraging feature of the Southern agricultural situation as it appears to-day. When we consider that in nine weeks the South has grown \$87,500,000 richer in the actual cash value of a single crop, it signifies a vast improvement in present conditions and business prospects.

A Shipload of Florida Oranges for England.

The sailing of the steamer Ethelwold from Fernandina for London last week with a cargo of Florida oranges marks the inauguration of what will undoubtedly develop into an important industry. The Ethelwold carried a cargo of 10,000 boxes of selected fruit, which cannot fail to make a favorable impression upon the English market. Mr. E. L. Goodsell, of New York, who is carrying out this experiment, deserves a great deal of credit for his persistent enterprise, and if he shall succeed in establishing a market for Florida fruit in England he will place Florida under lasting obligations to him, apart from whatever profit he may make by the venture. The increasing supply of Florida fruit often brings it in excess of the demand in the markets of this country, causing loss to the growers, but with such a foreign outlet as Mr. Goodsell is now endeavoring to provide, all surplus fruit could be easily disposed of at a profit without endangering the stability of home trade. The prime necessity of the foreign trade is direct communication between the Florida shipping ports and the English market, but the promise of certain trade will speedily insure the establishment of whatever shipping facilities may be needed. In fact, we learn that Mr. Goodsell is so confident of the success of his first experiment that he has renewed the charter of the Ethelwold, and she will sail from Fernandina with a second cargo early in January.

Mr. E. O. Painter, editor of the *Florida Agriculturist*, of Deland, Fla., who was chosen to go with the steamer as supercargo, has kindly engaged to keep our readers informed of the progress and results of this experiment, and in his first letter, which was written just before sailing, he tells of the origin of the undertaking and describes the stowing of the fruit aboard the Ethelwold. Mr. Painter's subsequent letters will prove of much interest to our readers.

Steel-Making in the South.

The letter which Col. A. M. Shook has written to Col. A. S. Colyar with regard to the need for the establishment of the manufacture of steel in the South, deals with a subject that has been widely discussed in the South, but which, nevertheless, is of vital interest and importance to that section. The important part that both of these gentlemen have taken in the development of the Southern iron industry gives additional weight to what they have to say in this connection.

As Mr. Shook says, the movement from wrought iron to steel has been rapid since the introduction of the Bessemer converter, and the latter is now available for almost every purpose for which iron formerly served. This movement is still going on, and while steel will never, in all probability, entirely replace wrought iron, its use will become even

more general than at present, and the sphere of wrought iron will become as limited as was formerly that of Bessemer steel. While this movement has been going on the South has been developing its iron resources only in the direction of making pig iron. The rails upon thousands of miles of Southern roads have come from Northern mills. The steel in the bridges, buildings and machinery of all kinds has come from the same sources. Thousands, yes millions of dollars have been paid out in freights and profits to the Northern steel mills which would have remained in the South had steel been made there.

This matter and its importance have not escaped notice heretofore. As early as 1878 the Roane Iron Co. operated an open-hearth steel plant in Chattanooga. Their attempt was unsuccessful, owing to several causes, prominent among them an insufficient understanding of the requirements of the process as applied to Southern pig iron. Since that time other trials have been made, one at the South Tredegar Works at Chattanooga in 1886, in which a single Clapp-Griffith converter was used; another by the Roane Iron Co. in 1887, this time with a Bessemer converter; later by the Henderson Steel Co. in Birmingham, Ala., using the Henderson process, which was essentially the same as the basic open-hearth, and still another trial at the Roane Iron Co.'s works in 1890, then owned by the Southern Iron Co. This latter attempt has probably been more complete than any preceding it, as the company changed the old open-hearth furnace into basic open hearths, put in a better equipment, and, with the Bessemer converter in the old mill, tried both the duplex and simple conversion in the basic open hearth. At the end of these trials the superintendent of the works went abroad to study the processes applied there. Since his return it is understood that he has been experimenting with a new process of his own, the essential feature of which consists in pouring the molten pig iron through a bath of highly basic slag, removing in this way the greater part of the silicon and some of the phosphorus. After this the metal is treated in the basic open-hearth furnace in the usual way. The details and practical results of these trials have never been made public, so that beyond the statement of the gentlemen interested there is nothing to prove or disprove what has been done, and it is impossible, therefore, to state what may be expected from this process. So far as can be learned, and from the opinions of those familiar with steel-making, it would seem that the duplex process is the one from which the most satisfactory results can be expected.

A review of past attempts at making steel from Southern iron is not encouraging at first sight. But in every instance there are circumstances which may not be always known, but which materially alter the aspects of the failures that have been made. Through faults or errors which usually have been independent of the principles involved or the pig iron used, every attempt at making steel from Southern iron has thus far resulted in failure. The proof of this is the fact that no steel is being made from Southern iron at the present time. These failures, however, have been due to lack of funds, errors of judgment, faults in

machinery and furnaces, but nowhere do we find any results that indicate the impracticability of making good steel from Southern pig iron, and making it, too, with entire success from a commercial as well as a technical point of view. Money and brains are the only essential factors.

That steel can be successfully made from pig iron made in the South there is not the least doubt, but it cannot be made from any and every iron. To produce the best results a careful selection must be made, and the furnace man must select his ores and so operate his furnace as to produce the kind of iron needed. Whether low silicon and low phosphorus or low silicon and high phosphorus be wanted, ores are in abundance to make either, and it can and must be made. Almost any one of the numerous existing processes of making steel can be successfully applied in the South if care be taken to shape the conditions to suit the process, or if the process be selected to meet the existing conditions. The acid Bessemer process is probably the least adapted to average Southern conditions, but we believe that even this can be successfully utilized if the necessary requirements be fulfilled from the ore bank to the converter.

We repeat, it is only a question of money and brains, and when two such men as A. M. Shook and A. S. Colyar set themselves seriously to the task, success ought to be assured.

A Case of Distorted Vision.

An unprejudiced reader of the opinions regarding the probable effects of the recent election must be struck with the amusingly absurd views expressed by the extremists of both Republican and Democratic parties. On one hand we find a Democrat who unblushingly claims that the advance of two and one-half cents per pound in the price of cotton during the past twelve weeks has been due to the election of Mr. Cleveland, while on the other hand we are confronted by a Republican who confidently asserts that the defeat of President Harrison is the forerunner of disaster and ruin in the South. One is as absurd as the other. In the heat of their enthusiasm and in the depths of their depression, men in whose minds politics is uppermost forget that there are conditions apart from politics by which the growth of this country is affected.

In the last issue of the *Manufacturer*, which is the organ of the Manufacturers' Club in Philadelphia, there is a curiously distorted article on "The Results for the South," the purpose of which is to show that prosperity will now depart from the South for an indefinite period—perhaps forever. Under ordinary circumstances, when he stops to think before he writes, the editor of the *Manufacturer* is a man of intelligence and sound views upon many subjects, but under the inspiration of a strong political bias he has delivered himself of views that do him no credit. For example:

Business at the South is dull. The boom which so vigorously manifested itself a few months ago has spent its force, and of late complaints have been heard from every side of the suffering of the people from commercial depression.

The writer of the quoted lines is eighteen months or two years behind

the times. Within the last two or three weeks we have received hundreds of letters from prominent bankers and merchants in various sections of the South, who testify with one accord that the South is prosperous and that business conditions are better than they have been for two years past.

Read this:

The hope of the planter class is, perhaps, that the price of cotton will rise, but cotton is now cheap, not because of the tariff, but because of the demonetization of silver.

What nonsense. In the first place cotton is not "cheap" at present, having advanced from seven to nine and one-half cents since September 1, thereby increasing the cash value of the crop by about \$87,000,000. Cotton was very cheap last summer—cheaper than it has been for fifty years—but not because of tariff nor the demonetization of silver. It was cheap simply because there was too much of it, just as it is now dear because there is a prospect that there will be a scant supply. The price of the greatest crop raised in the South is governed by the law of supply and demand.

Another specimen:

No, not only is the Southern boom over, but it is ended for many years to come, and one of the most promising of the existing industries in the South—the wool industry of Texas—appears to be doomed to extinction. The South will remain for another generation an agricultural region, and its people will remain poor.

If by "boom" is meant the spasmodic speculations in town lots, in which some of the members of the Manufacturers' Club took a prominent part two years ago, we say amen. That boom fell flat more than a year ago; it should have collapsed when it first started. But we fail to see the connection between booms of any kind and the wool industry of Texas. We believe the sheep-raisers in Texas will be amply able to look out for their own interests, and furthermore, we do not regard that industry as in any danger of extinction. We venture to predict that it will not only hold its own, but expand and develop. Here is a thought that is suggested by the mention of the Texas sheep: The increase in the value of the Texas cotton crop during the past twelve weeks has been more than double the value of the entire annual wool clip of Texas, which, we believe, amounts to something like \$7,000,000 or \$8,000,000. The continuance of the South as a distinctively agricultural region depends upon where the line is drawn to distinguish between an agricultural and an industrial section. We are inclined to hold that the South has already passed from agriculture to industrial pursuits more closely allied to manufacture as the predominant element. We presume the census will show where the South stood in 1890 in this respect. The fragments already received give some indication of what is to come. For fourteen Southern cities we have manufactures of \$329,000,000 in 1890, as compared with \$192,500,000 in 1880. The manufacturing interests of these fourteen cities in 1890 equal the value of this year's cotton crop, and these cities include only a small fraction of the iron industry, none of the iron ore, coal and other mining interests, and only an insignificant portion of the great lumber and woodworking industries, which overtop all others. We do not believe that agriculture now predominates in the South. Will the people of the South remain poor for still another generation? They are far

from that at present, and wealth is increasing in the South at as rapid a rate as is healthy for any people.

The whole spirit, tendency and aim of this article in the *Manufacturer*, which we are discussing, is to demonstrate that Democratic supremacy means a sweeping removal of the tariff and the substitution of free trade for protection. While we cannot claim to be in the confidence of the guiding powers of the coming administration, we feel perfectly safe in predicting that there will be no legislation that will do violence to the manufacturing or commercial interests of our nation. No party can do that without suicidal results, and we credit our legislators, present and prospective, with possessing sufficient sagacity to discern this fact.

To conclude, we say, without fear of contradiction, that the South was never so prosperous as it is to-day, nor were the prospects for that section ever so full of promise and encouragement as they are at this time. You may ascribe these conditions to politics or any other cause that suit your fancy. The fact remains unchanged.

Atlanta's Growing Banking Facilities.

By Col. L. W. Avery.

Ten years ago Atlanta's banking capital was \$850,000; to-day it is over \$7,500,000. The increase in this decade in corporate and private banking capital has been nearly \$7,000,000. Then the surplus was \$350,000, and now it will run to \$2,000,000, increasing sixfold. The loan and discount total was then \$2,400,000, and now it will reach over \$10,000,000.

Ten years back the deposits were \$2,000,000, and now go to over \$8,000,000.

BANKS.

Atlanta National Bank, capital and surplus \$400,000, deposits \$1,200,000.

Atlanta Banking Co., capital and surplus \$200,000.

Atlanta Exchange & Banking Co., capital and surplus \$75,000.

Atlanta Guarantee Savings Bank.

Atlanta Investment & Banking Co.

Atlanta Trust & Banking Co., capital and surplus \$182,500, deposits \$165,000.

American Trust & Banking Co., capital and surplus \$550,000, deposits \$615,000.

Bank of the State of Georgia, capital and surplus \$145,000, deposits \$310,000.

Capital City Bank, capital and surplus \$500,000, deposits \$510,000.

Commercial Banking & Trust Co.

Corbin Banking Co. of New York, T. J. Felder, special correspondent.

Fidelity Banking & Trust Co., capital and surplus \$200,000.

Gate City National Bank, capital and surplus \$300,000, deposits \$846,000.

Georgia Security & Banking Co.

Georgia Loan, Saving & Banking Co., capital and surplus \$75,000.

Home Bank of Atlanta.

J. H. & J. L. James & Co., capital and surplus \$200,000, deposits \$70,000.

Lowry Banking Co., capital and surplus \$440,000, deposits \$1,100,000.

Maddox-Rucker Banking Co., capital and surplus \$150,000, deposits \$375,000.

Merchants' Bank, capital and surplus \$400,000, deposits \$775,000.

Merchants & Mechanics' Banking & Loan Co., capital and surplus \$120,000.

Mutual Loan & Banking Co., capital and surplus \$72,000.

Neal Loan & Banking Co., capital and surplus \$317,000, deposits \$745,000.

Southern Banking & Trust Co., capital and surplus \$300,000, deposits \$350,000.

Southern Exchange Bank.

Southern Loan & Banking Co., capital and surplus \$30,000.

State Savings Bank.
State Savings Bank Co.
Empire State Bank.
Piedmont Loan & Banking Co.
Exchange Bank, capital and surplus \$100,000.

PRIVATE BANKERS.

Cornelius Jordan.

F. W. Miller.

Henry R. Powers.

J. Walter Kimball.

Weyman & Connors.

LOAN AND BUILDING ASSOCIATIONS.

Germania, fourteen years old.

Hibernia.

Empire.

Gate City Loan.

People's Building and Loan, six years old.
Mechanics' Building and Loan, six years old.

Atlanta Building and Loan, six years old.
State Building and Loan, five years old.
The Standard, four years old.
Fulton Building and Loan, five years old.
Piedmont Building and Loan, five years old.

Mutual Benefit Building and Loan, five years old.

Union Building and Loan, four years old.
Haeville Building and Loan, six years old.

Haeville Mutual, three years old.
Atlanta, Edgewood, Kirkwood and Decatur, three years old.

Home Company of Atlanta, three years old.

Southern Mutual Building and Loan, five years old.

Southern Home Building and Loan, three years old.

Atlanta National Building and Loan, two years old.

American Building, Loan and Tontine,
Southern Home.

Interstate Building and Loan.

Eastern Building and Loan of Philadelphia.

Citizens' Loan and Building.
Equitable Building and Loan of Augusta.
Georgia Building, Loan and Savings.

National Railway Building and Loan.
National Tontine Building and Loan.
New South Building and Loan.

Mutual Aid, Loan & Investment Co.

Union Building and Loan.

Germania Loan & Banking Co.

In addition to her banks, Atlanta has the above thirty building and loan companies, loaning millions of dollars and building thousands of houses for men without capital, furnishing homes for laborers and adding to the taxable wealth of the city, besides drawing money from adjoining towns and States.

Atlanta has a large clearing-house for her banks.

E. B. GATLING, of Knoxville, Tenn., states that about 4,000,000 pounds of tobacco are handled there annually. The supplies are secured from Virginia, North Carolina and Western manufacturers. In speaking further of the trade, this gentleman says Knoxville presents an excellent field for a large tobacco factory if fully equipped with the most improved machinery.

THE Southern Canners' Association has been organized at Savannah, Ga., with A. H. Kohn, of Prosperity, S. C., as president; J. W. Emmerson, of Lakeland, Fla., first vice-president, and Thomas Gamble, of Savannah, secretary. The association proposes to devote itself to promoting the interests of Southern canners, and will hold a meeting next March, probably in Atlanta, to perfect a permanent organization. The canning industry is spreading rapidly in the South, and the necessity of such an organization as this has been felt for some time. An estimate of the number of cans packed last season in the Southern States is given as 35,000,000.

MECHANICAL.

Friction and Lubrication.

By Albert D. Fents.

II.

THE first necessity of a fluid lubricant is that it shall have a mutual attraction for and with the surfaces it separates, and that the adhesion due to this attraction shall be greater than the cohesion of the molecules of the lubricant to each other. It will be seen that thus a fluid lubricant cannot be said to have sliding friction, but its particles may be said to continually be mixed or kneaded together, and if this kneading be greatly accelerated or maintained at a heavy pressure it is evident that considerable heat will be evolved, on the same principle that wire is heated in drawing it and a piece of lead is heated by squeezing it in a vise. The second necessity is that the fluid lubricant shall not carry nor contain anything that can corrode or dissolve the sliding surfaces. Thus water can adhere to iron, and it practically is void of internal cohesion. So far it is an acceptable lubricant, but because it always contains a limited corrodant of iron it cannot safely be used pure. When, however, its corroding qualities are neutralized by the addition of a suitable alkali it is one of the best lubricants for light service. Heavy service, however, must have a lubricant that is not so easily pressed asunder. It must have great cohesion or "body," so that it may not be squeezed out of the journals by the weight or pressure on these journals. Hence, oils or other heavy fluids are generally used because they have this adhesive quality as well as great viscosity, are non-corrosive and are capable of being made as fluid or as heavy as desired.

Oil as a lubricant may be considered as being one of three kinds, irrespective of its origin. It may be a solution which will harden into a varnish like linseed oil; it may be a solution like a paraffine oil which becomes a wax, or it may be oil continually and under all conditions like the fat oil of lard which hardens into a grease. The varnish oils are not good lubricants under any prolonged test, because they dry at all temperatures and leave the friction surfaces coated with an elastic integument. Many animal oils are largely charged with a natural gelatine, so that they become hard when dry after a long exposure on a metallic surface, which is little better than varnish. Lard oils have this quality when they are not carefully made in so low a temperature that this gum will largely remain back with the solid stearine. The wax oils are inferior to the fat oils, except it may be asserted that they are best where the temperature or the pressure is very great, and even then a long experience indicates that when their tough cohesion is overcome by heat, pressure or dilution, and thus becomes an inconsiderable factor, their value as separating media is probably inferior to the fats. While the fat oils are eminently safe as separators of surfaces, they are eminently viscous and develop an immense amount of resistance between their molecules, atoms, drops, or whatever kind of particles it may be that slip by each other when matter is in the fluid state. This viscosity is increased by pressure, cold and evaporation. It is obvious that all the resistance there may be noticed in any machine where the surfaces of the bearings are separated by lubricants which adhere to such surfaces with greater persistency than they cohere together internally is that due to the viscosity of the lubricant.

THE only value I have found in pure petroleum lubricants is initial cheapness. On a large iron planer there was tried pure mineral oils to see if there could be a saving made where animal oil had previously been used. The result was that when the

oil was heavy enough to keep the platen properly separated from the bed, the viscosity was so great that the backing belt complained of it, and where the oil was fluid enough to satisfy the power, then the metals would get into actual contact and cut.

THE reason that the combination oils are successful seems to be that their fluid mineral constituents are excellent dilutants of the fat oils, and serve well as vehicles to distribute them over large surfaces in economical quantities.

IT must be kept in mind that the proportion of oil wasted to that worn out is infinite. I made a pulley which had an automatic oiling device within it, which device is arranged so that oil taken from an annular pocket about the shaft upon which it rotates and fed to the bearing is carried the full length of that bearing and then is returned to the pocket to be used over again. This pulley, with perhaps three ounces of oil in its pocket, was started at 1,200 revolutions per minute, and ran ten hours each working day and much overtime until more than 200,000,000 revolutions were made by it with no additions to the lubricant. Then it was examined, and there seemed about as much oil in the pocket as at first. The oil, however, was very dark in color and quite viscous. Now, if this pulley in that time had been oiled 600 times it would have taken perhaps two quarts of oil, while, in fact, it actually consumed but an inappreciable part of three ounces.

IT is obvious that if the mineral hydrocarbons in combination oils are of value principally to distribute the fats which are the real lubricants, that they are quite expensive media for that purpose, and if, as is evidently a fact, this method of dissolving fats is an economical one, there may be found a dilutant as good and perhaps better, and which is infinitely cheaper. This idea, of course, at once suggests the combining of the fats with water.

IN the admixture of water with fat oils, it is fortunate that the same means which may neutralize its corroding quality for iron chemically serves to combine the two fluids and greatly reduce the viscosity of the fats at the same time. Thus, an emulsion made of 5 per cent. of lard, with water and just enough of caustic soda to combine them, is an excellent lubricant, especially for use in cutting tools. In fact, the addition of about one pound of sal-soda alone to eight quarts of water (a pailful) is good, and it is used to lubricate the tools in water-polishing wrought iron and soft machinery steel. Alkaline waters are not novel lubricants, neither are the triple compounds of water, a fat and an alkali, but they are not so well known as they deserve to be or as they will be when they are investigated for efficiency and economy. I believe that soapy compounds made of clean fats, suitable alkali and diluted with water to the required consistency are superior and economical lubricants. If they are found to be the best there will be but little surprise expressed by me. Their cheapness, comparative freedom from viscosity and their habit of keeping bearings cool are desirable qualities and rare ones.

Improved Machinery and Workmen's Wages.

[U. R. Tompkins in *Engineering Magazine*.]

We often hear predictions from a certain class of men that the advance in the art of woodworking, as well as in other mechanical branches, and the introduction of labor-saving machinery will eventually reduce the wages of the workman. It is safe as a rule to judge the future by the past, and we have already seen that the introduction of labor-saving machines, so far as the building business is concerned, has not only increased the demand for skilled workmen,

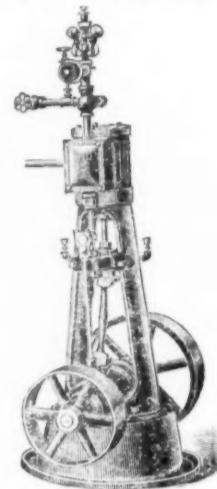
but more than doubled their wages for fewer hours of labor. What is true with the woodworking trades is equally true with every other branch of mechanics where skilled labor is required. As late as the year 1856 first-class machinists could be hired at \$1.75 per day, and the necessary machinery for a planing mill or other woodworking establishment was little, if any, cheaper than at the present time, although there is nearly double the work upon a modern planing machine than there was upon machines of that date. There is no question but with the present facilities a manufacturer would be able to put upon the market machines of the style of 1856 at much less than they were then sold for. Now machines of more than double the capacity of the former, with all modern improvements and conveniences, are afforded at about the same figures that were charged for them forty years ago. While manufacturers are realizing about the same profits as formerly, they are paying for the same class of skilled labor from \$2.50 to \$3.00 per day. This change has been brought about by the countless labor-saving devices that have been introduced into the modern machine shop, whereby one man with less manual labor is enabled to turn out double the amount of work in a given time; still, the market is not overstocked with first-class machinists. Therefore, it does not appear that the introduction of labor-saving machines has had an injurious effect upon machinists' wages. The same rule will apply to every other branch of mechanical business. Experience has proved that the introduction of any mechanical device that will lessen the cost of production and enable the producer to put upon the market an article at less price or a superior article at the same will in every instance increase the demand. Nowhere is this principle better exemplified than in the products of woodworking machinery.

A Special Milling Cutter.

We present herewith an illustration of a gang of the Ingersoll patent milling cutters, made by the Ingersoll Milling Machine Co., of Rockford, Ill. These cutters were made for milling the guides of a Corliss engine, and a block which was milled in testing them was photographed with the cutters and is shown by the engraving.

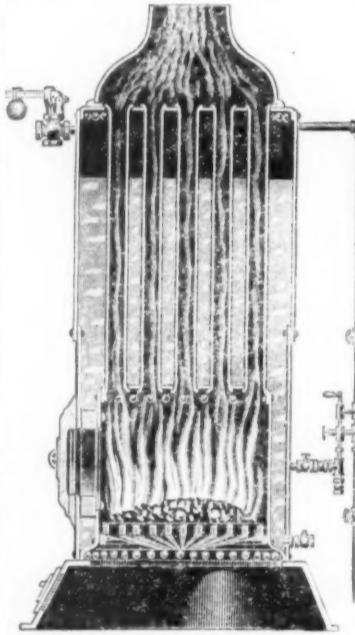
The radius of the circular portion of the cut is four and one-half inches, and the cutter for this is eight inches in diameter. The other cutters are eight and one-quarter inches and four and one-half inches, respectively. The surface produced by these cutters is accurately and smoothly finished, and it is found that this method of forming the cutting edges of a number of small steel pins set into a cast centre is well adapted to any desired form. These

Mich. The engine is designed for light work, and is made in sizes varying from two to twenty horse-power. The illustration shows the engine with a throttle governor, but the company make them with



THE CLARK VERTICAL BOILER.

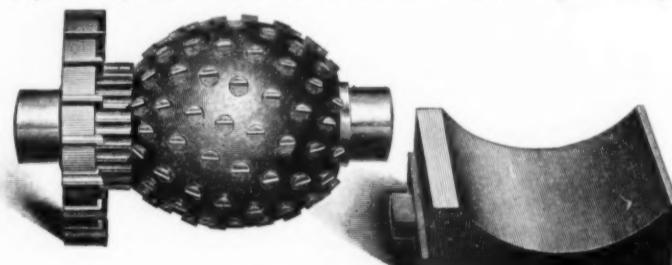
either plain or automatic cut-off valves, as desired. The firm is also getting out the patterns and will soon have ready to place on the market a new engine similar in design, but of the horizontal type, on which



THE CLARK HIGH-SPEED ENGINE.

they intend to place a recently-patented governor.

The boiler illustrated is of the vertical type and is made in sizes to supply the demand of the different engines. They are



A SPECIAL MILLING CUTTER.

cutters can be made any diameter and width of face to mill work of any shape, such as crossheads, connecting rods, boxes, pillow-block caps, crank-pin boxes, etc. These cutters are also adapted to use on any milling machine.

The Clark High-Speed Engine.

The accompanying illustrations show a new high-speed engine and boiler which has recently been designed and put on the market by George Clark, of Kalamazoo, [dynamics, is the ammeter. As the life of

made of the best quality steel and are tested to a tensile strain of 60,000 pounds per square inch. The engines can be furnished on separate or combined base, and also are made mounted on trucks.

The Cutler Non-Inductive Ammeter.

One of the most important instruments in connection with an electric-light or power-generation station, and one which is almost indispensable in running arc-light

the carbon filament in an incandescent lamp depends on the volt meter, so it may be said, in a restricted sense, that the life of the carbon in an arc lamp depends on the ammeter.

The ammeters now on the market all have the objection that they depend on a



THE CUTLER NON-INDUCTIVE AMMETER.

magnet for their action, so that their readings are easily affected by the large masses of iron present in all central stations. Even where they can be used at a distance from the dynamo room, it is found that the magnets in two such instruments placed side by side on a switchboard will spoil each other's readings; further, the accuracy of magnetic instruments is affected by a change in the speed of the dynamo, this being specially noticeable with alternating currents.

For these reasons there has been a call for non-magnetic ammeters, and this seems to be met by the one designed by Mr. H. H. Cutler, of Chicago, Ill. This depends for its action on the difference in expansion between two fine wires, one of which is traversed by the current to be measured, while the other compensates for changes in the temperature of the room. For heavy currents a shunt is placed at the back of the instruments, so that the same small size of wire can be used. The two wires are fixed at one end, and are kept taut by flat springs carrying knife edges. A yoke resting on these bearings carries a light pointer, the leverage being such that quite a small expansion of the measuring wire will move the needle across the scale. This instrument is practically deadbeat, and is not affected by any amount of iron masses near it. It is equally accurate for direct and alternating currents, and has been thoroughly tested in practice during the past six months.

The illustration shows a double scale ammeter reading up to sixty-five amperes, and it will be noticed that the scale is much longer than on most instruments. The Cutler non-inductive ammeters are built in sizes ranging up to 160 amperes, to meet the varied requirements of different stations, and are put on the market by George Cutler, of Chicago.

The Ries Regulating Lamp Socket.

At this advanced age it is useless to enter into any extended argument to prove the advantages of incandescent electric light over gas. It is unquestionably destined to be the future light, almost universally in the factory, the workshop, the office and in the homes of the people. Heretofore it has been impossible to regulate the amount of electricity consumed; the consumers have had no option but to turn on the light "full blast" or to extinguish it entirely. In many cases this meant the consumption of more light than was required, wasting the current, and in every case necessitating frequent renewals of the lamps. Besides

this the extreme brilliancy of the light in its full strength is trying to people with weak eyes, and heretofore there was no choice or medium between the full power and utter darkness.

Mr. Elias E. Ries, of Baltimore, Md., has overcome these objectionable features by an ingenious piece of mechanism called the Ries regulating socket. The candle-power of a lamp can, through its agency, be reduced from its maximum brightness to a dull red glow with a considerable saving in current and no doubt an increase to the life of the lamp. Thus each individual lamp is under perfect control and the light can be regulated to a point that makes it grateful to the weakest eye. An important point is that the amount of electrical energy required by the lamp varies according to



THE RIES REGULATING LAMP SOCKET.

the light given, and can be reduced from fifty watts to less than five watts, which, of course, makes a corresponding reduction in the cost per light. The importance of these features, not obtainable by any other known method, are apparent to those familiar with the incandescent lamp, and the advantages of this socket will be readily appreciated.

Apart from the advantages of regulation, this invention commends itself on the ground of economy, as where the current system is sold by the meter system the consumer has the satisfaction of knowing that he is paying only for what he actually uses, there being no "resistance" or other current-consuming devices in the socket to waste the current. These sockets are made to fit standard incandescent electric lamps of any make, candle-power or voltage. The Ries Electric Specialty Co. have their office at Baltimore and Eutaw streets, Baltimore, Md.

MR. JOHN L. OGLESBY, of the Brokers' Tobacco Warehouse, Lynchburg, Va., makes the following statement as to tobacco sold:

Sold week ending November 12, 1892,	121,300
Sold week ending November 19, 1892,	732,500
Increase week ending November 19,	611,200
Sold from Oct. 1, 1892, to Nov. 19, 1892,	1,044,700
Sold from Oct. 1, 1891, to Nov. 19, 1891,	510,800
Increase for 1892,	533,900

THE Congaree Manufacturing Co., of Columbia, S. C., will hold a meeting of stockholders on December 21 to consider an increase of its capital stock and the issuance of bonds.

COTTON MARKET.

NEW ORLEANS, LA., November 19.
Editor Manufacturers' Record:

In our last we referred to the anti-option bill as likely to be a disturbing element to the cotton market, but we did not anticipate that its effects would be evidenced so soon after our calling attention to the threat being made by the bears, for whose especial benefit it would appear that legislation of that character must be intended. On one side there is a prospect of a crop of 6,500,000, with all the bullish feeling that would naturally be engendered thereby giving encouragement to the holder of spot cotton by reason of the probable greater demand from spinners, and on the other side we have the short interest—the spinner—and the Hatch bill or some similar bill to be used as a depressing feature on the market continually. We think, however, the question is being brought home to the planter and all those interested in cotton in a very pronounced way of late, and the bearing of such legislation upon the value of cotton is being made more apparent daily, and if we remove the political features connected with all the discussion of the Hatch and Washburne bill at the last session of Congress we will find that, after all, there is little to fear of any legislative action in reference to the buying and selling of speculative commodities by what are known as future contracts. The importance of this character of business to the actual thing itself is being made very apparent this year, so far as cotton is concerned. An utterance of Mr. Washburne several days ago as to the re-introduction of his bill in the Senate caused the bears in this market and New York to depress the market, and on Thursday and Friday the decline from the highest was nearly fifty points. The reaction from the lowest of yesterday, however, to the closing to-day is fifty points, all due to the improvement in Liverpool, and also to a growing feeling that no restrictive measures, so far as anti-option bills are concerned, can be passed by the present Congress.

With a crop of 6,500,000 bales, which is now becoming a not unlooked for supply, it means that about 600,000 bales will have to be retained in the New Orleans and New York markets to protect the short interest. It is a safe calculation to say that 400,000 bales at least will be bought for investment, which will leave 5,500,000 bales to provide for the world's spinning requirements, to which is, of course, to be added the surplus carried over from the last crop, but there has already been 2,860,000 bales brought into sight according to the report of our exchange yesterday. It is therefore not surprising that the South is holding so tenaciously to her crop, such as it promises to be, which, when scattered over all of the cotton-growing States, and represented by the planters and merchants and bankers and capitalists, offers no weight whatever, but, on the contrary, it presents to them an opportunity of profitable investment, and if spinners are as bare of stock in Europe as they are represented to be, they will certainly have to buy cotton, and we think the South is in a position to dictate prices to a great extent.

Our advices are that spinners on the other side are getting uneasy. The possibilities of a short crop are really of an alarming character, and if anyone wants to see how strongly a crop under 7,000,000 is confirmed make a comparison with the amount coming into sight weekly from the 1st of September to date in 1887 and the movement this year to date from the 1st of September. The crop of 1887-88 was 7,000,000. The amount that had come into sight the 1st of December of that season was 4,053,000. The amount that had come into sight yesterday was 2,860,000 bales;

therefore, with only twelve days earlier than last year, we are practically 1,200,000 bales short. If these are not figures worth serious reflection for the bears then they are not people to be converted.

ATWOOD VIOLETT & CO.

CLOSING PRICES OF FUTURES NOVEMBER 22.

Months.	New Orleans.	New York.	Liverpool.
November	....	9.27	5 4-64
December	9.17	9.26	5 4-64
January	9.26	9.45	5 6-64
February	9.36	9.56	5 8-64
March	9.47	9.69	5 10-64
April	9.56	9.80	5 11-64
May	9.66	9.90	5 13-64
June	9.76	10.00	5 15-64
July	....	10.05	5 17-64
August	....	....	....
September	....	....	....
October	....	....	....
Tone of market.	Steady.	Weak.	Steady.

CLOSING PRICES OF SPOT COTTON NOVEMBER 22.

Grade.	New Orleans.	New York.	Liverpool.
Middling	9 1/2	9 1/2	5 1/2
Low middling	9 1/2	9 1/2-16	5
Good ordinary	9 1/2	9 1/2	4 1/2

Tone of market. Steady. Steady. Firm.

Southern Textile Notes.

RUMORS are again rife of the erection of another cotton mill at Florence, Ala., and Mr. W. H. Zinn, of Boston, Mass., is mentioned in connection.

MESSRS. SCHMID & SEFTON's new batting factory at Terrell, Texas, has started up, and turns out 1,500 bundles per day.

PLANS for the erection of a \$50,000 or \$100,000 cotton mill at Gadsden, Ala., are being formulated by the citizens.

THE new \$600,000 cotton mill of the Dallas Manufacturing Co. at Huntsville, Ala., went into operation last week. Its equipment contains 25,000 spindles and 750 looms.

A. R. MARLETT, of Carrollton, Ky., has put in a loom for manufacturing rag carpets and has it in operation. Other looms to enable him to produce English cottage and grain carpets will be put in soon.

THE stockholders of the Spartan Mills, of Spartanburg, S. C., held their annual meeting on the 18th inst. and declared a semi-annual dividend of 3 per cent.

THE Alpha Mills, of Charlotte, N. C., manufacturers of warps and yarns, has received a letter from Cape Coast, Africa, asking for samples of its cloth.

MESSRS. BOYD & CO., who recently established a seamless bag factory at Reidsville, N. C., have organized as the Boyd Manufacturing Co. for the operation of the plant. The equipment includes fifty looms.

IT is reported from Enterprise, Miss., that a cotton-knitting mill will be established there immediately. No names are mentioned.

THE erection of a knitting mill at Franklin, Ky., is projected. Representatives of the Franz & Pope Manufacturing Co., of Bucyrus, Ohio, manufacturers of knitting machines, are now in Franklin endeavoring to form a company.

AT the coming session of the South Carolina legislature a charter will be applied for by North Carolina and South Carolina capitalists for the organization of a \$50,000 stock company to erect a cotton mill at Landsford. It is proposed to build a complete plant to be operated by water-power, and work on it will be begun as soon as the company can be formed.

THE Cedar Falls Manufacturing Co. has lately built a new brick cotton-house and placed in its mill a Denn warper and new openers and lappers from Potter & Atherton, of Pawtucket, R. I. This company manufactures 8s to 16s yarns and operates 4,000 spindles. Dr. J. M. Worth is president, and O. R. Cox, treasurer and superintendent.

LUMBER.

[A complete record of new mills and building operations in the South will be found in the Construction Department, on page 346.]

Poplar in Eastern Tennessee.

A correspondent of the *Northwestern Lumberman*, writing from Knoxville, Tenn., gives some interesting comments upon the methods of handling poplar timber, from which we take the following extracts:

A somewhat extended visit to and examination of the poplar-growing districts in Eastern Tennessee reveals the fact that operators are pushing further back into the mountains to secure such amount and quality of poplar timber as they need for their trade. The fact is unmistakably forcing itself upon operators in this section that the small tracts of the better quality of poplar timber within easy reaching distance of transportation has been cut. It is not unusual to see lumber hauled a distance of twenty miles on wagons, and over roads by no means equal to the boulevards of Chicago. Most of the best timber is now owned by those having tracts of 3,000 to 10,000 acres or more, and as they will not sell the timber without the land, it is not every logger or mill man who can buy such tracts. It is evident, therefore, that the poplar lumber business in the region where the largest amount of timber remains is undergoing a change and shaping itself so that in the near future there will not be so many of the small operators as at present. Larger operators, with ample capital, modern mill equipment and men with large experience, having knowledge of the wants of the trade, will hereafter be able to control the poplar lumber trade better than ever before.

The Poplar Manufacturers' Association is doing good work if in nothing more than in promoting harmony of action among the members and seeking to adopt the best methods for their good. Better prices will eventually be obtained as a result of the combined action of so many of the most intelligent and wide-awake millmen.

If there be any one reform needed more than another, it occurs to me that it is in cutting of the logs in the woods. Why most of the loggers will persist in cutting the logs ten and twelve feet long—mostly the latter length—is beyond my comprehension, unless it be that they like to work in the old grooves. The only apparent reason for cutting logs the lengths mentioned is because their grandfathers cut them that length. People living in rural districts, remote from centres of population, and especially those living in mountainous regions, are slow to get out of the old ruts. They live in a primitive manner, and not having been out in the world to see how other people live or work, do not know how to do different from their old accustomed ways. And yet it would appear that by the exercise of a little common sense they might see wherein they could change in many ways.

Last week while in the woods among loggers who were cutting sound, magnificent poplar timber, the instructions having been given to cut most of the logs fourteen and sixteen feet lengths, about an equal proportion of each, I was surprised to see nearly every log cut twelve feet long. When asked why they didn't cut them fourteen and sixteen feet the loggers replied that they couldn't handle logs over twelve feet long. There were logs thirty to sixty inches in diameter nearly all twelve feet long. I called their attention to having handled a 60-inch log, and said I couldn't understand why they could not handle a 30-inch log fourteen or sixteen feet long, but their only reply was, "Well, hit just kaint be done." The readers of this who handle poplar lumber and have been wondering why they always got a surplus of

12-foot lengths may find in this something of an explanation.

Not long ago I was pleased to see such old foggy or precise notions put aside in a most unmistakable manner. The logging for a certain mill was done by men who adopted the usual custom of using oxen for skidding and hauling. They said it was useless to attempt to use horses in skidding logs in a mountainous country. I asked them if they had ever tried horses. No, but they knew it was no use to try them. The logging company had ten yoke of oxen, or more properly calves, and were putting to the mill from 10,000 to 15,000 feet of logs a day, and thought that they were doing a wonderful business. The mill having a capacity of 25,000 to 30,000 feet daily, could not run to its full capacity on account of lack of logs. One day a middle aged man of large experience, who had lumbered in one of the Eastern States in his earlier years and then went to Michigan, where he was engaged in the lumber business for several years, appeared upon the scene. The timber, mostly poplar and white pine, was of good size, and the logging not very difficult. He asked the logger who was cutting the logs mostly twelve feet long why he didn't cut them mostly fourteen and sixteen feet, and use horses instead of cattle. "Kase it kaint be done," was the reply.

There are times when upon proper occasion some lumbermen can use strong and forcible language. This was such an occasion and the man a representative of that type. It would not be proper for me to repeat here what was said by this hustling logger of the Northwest, but he soon convinced the millmen if they would pay him a certain price a thousand feet he would keep their mill supplied with logs. An agreement was entered into, and soon the ten yoke of calves disappeared. In their place five heavy span of horses each weighing 1,300 to 1,400 pounds were put to work. These averaged 25,000 feet a day in skid-

timber. Those who are familiar with this kind of timber know that when it grows under favorable conditions it is one of our most majestic forest trees, often reaching the height of more than 100 feet, with a smooth, clear trunk four to seven feet in diameter, remarkably uniform in thickness, and fifty to seventy-five feet to the first limb. In most of the new districts few logs are cut above the first limb, so that the quality of the logs is of the best. The genuine soft yellow poplar has usually thin sap, the wood is brash, and the tree easily broken when it falls upon the ground, unless care is exercised in felling it. Millions of feet of our best poplar timber are thus wasted every year through the carelessness of choppers.

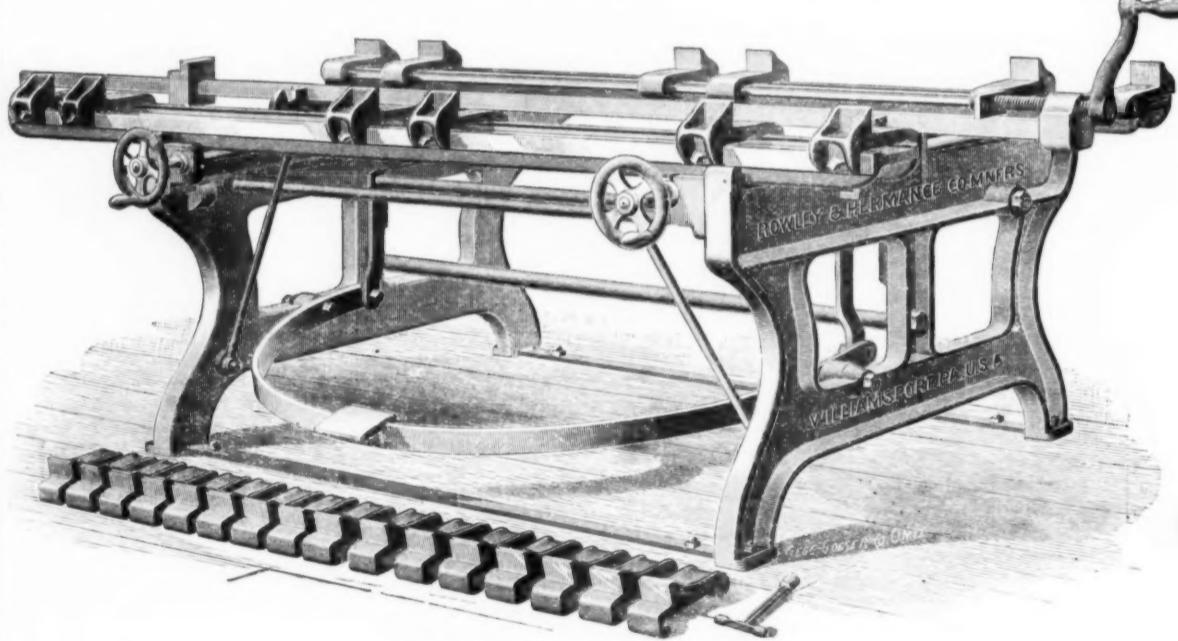
Another wasteful feature is that of allowing a portion of the tree to remain unutilized. For instance, the choppers will saw the tree off as near the butt as possible, then measure a 12-foot log and saw it off, and continue to saw as long as they can get 12-foot logs, apparently giving no attention as to whether any good portion of the tree remains after cutting off the last log, if that portion will not cut twelve feet in length. Say they cut four logs twelve feet long, or forty-eight feet of the length of the tree. There may be eight, nine or ten feet of good timber which can be utilized if properly managed. Suppose the choppers, instead of cutting all the four logs twelve long, had cut one sixteen feet, two fourteen feet and one twelve feet, they would have cut fifty-six feet of the tree, saved eight feet of its length, and this saving on trees four or five feet in diameter is an item worth considering.

It is necessary to state, however, that this carelessness and waste is seen only where the more primitive logging methods continue. Among our best operators no such work is allowed where they do their own logging. Millmen who buy their logs pay but little attention to the woodmen's methods, and hence are ignorant of this

The machine is accurately and substantially made. The legs are well braced to give steadiness, and the guides are well finished and exactly parallel. The plates to which the corner blocks are attached have a circular groove, and the corner blocks have a turned flange on the bottom to fit this groove; thus the corners swing a true circle. There are two lugs on the corner block, one at a greater distance from the centre than the other, to allow more pressure on stiles than on the rails. The machine can be set quickly for any size, and will clamp the sash perfectly square. It is furnished, when desired, with a clamp for sash or shutter work.

Farwell's Window Frame Pocket Cutter.

This machine, constructed by the Adjustable Saw Table Co., of Fitchburg, Mass., and shown in the accompanying illustration, is the only one on the market for cutting square end pockets from the inside of jamb, and is designed as a companion for the pulley mortiser made by the same company. The pockets are all cut at one handling, and will cut from seventy to seventy-five frames per hour. The machine consists of a frame with hinged top adjusted by a hand wheel to govern the length of pocket. The arbor has collars for cutting different widths of pocket. Underneath the machine is a countershaft, on the boxes of which is housed a swing arm, and on the top of this is mounted two circular saws. Attached to the arm is a lever for swinging the saws. The under side of the arm is provided with counterbalance. Attached to the back end of the frame are brackets and boxes, on which is housed another swing arm. It is also provided with an intermediate countershaft. On the counter is a 20-inch friction driving pulley which transmits power to an arbor mounted on the arm. On the top end of this arbor is a 3-inch circular saw, back of which is a



SINGLE MOTION DOOR AND BLIND CLAMP.

ding, cutting the logs twelve, fourteen, sixteen and eighteen feet long, no matter what the size of the log. Not a horse was hurt, and when the job of 12,000,000 feet was completed the horses were almost in as good condition as when they first went on the job.

Here was a practical demonstration of what can be done by the right kind of men and methods in comparison with the antediluvian ways that have prevailed too long in some sections.

And while on this subject I want to call attention to another evil or wasteful method carried on by too many loggers of poplar

waste, or do not seem to care if they do know about it.

Door and Blind Clamp.

The accompanying illustration shows a new pattern single motion door and blind clamp made by the Rowley & Hermance Co., of Williamsport, Pa. The manner of operating the machine is extremely simple and rapid, as can readily be seen in the illustration. Regarding its rapidity Foster & Jones, of Oshkosh, Wis., state that two boys clamped, wedged and pinned 360 doors in ten hours on this machine, the fastest work they know of.

mill to allow of using a small saw. The mill also provides a slot in back of jamb for screws or nails. This arm is also provided with counterbalance and lever for swinging the saw. Each machine is provided with a planer head, so the window jambs can be planed to a surface after the pocket is again fastened into place.

The machine is operated as follows: The top is adjusted to give the length of pocket desired, the jamb is laid level on the table and the top end of pocket cut by swinging up the small saw; the jamb is then moved the length of the pocket to a stop, and the bottom end cut in the same

Norfolk.

[From our own Correspondent.]

NORFOLK, VA., November 22.

The past week has been characterized by a special activity in the lumber market, and in every department of this industry the prospect is most flattering. With favorable weather the volume of transactions for the current month will be very large, exceeding, perhaps, that of any other previous month, and both manufacturers and buyers report an active and constant demand. The building boom has caused quite a demand for lumber and woods for finishing interiors, and it is expected that with the opening of spring of 1893 there will be an immense trade in lumber at this port. There is a first-class inquiry for North Carolina kiln-dried yellow pine, and transactions during the week in this particular line have been very heavy. Prices are well maintained, and at the present figures ruling orders are numerous, and all city mills as well as those throughout the pine region are fully engaged. In air-dried lumber there is a fair volume of business, and the market shows up somewhat better. The demand is better, and in both a local and shipping way there is considerable moving at steady figures. The inquiry is mostly for flooring grades, which are in good supply, while box lumber in edge widths is very dull and hard to move. Values range as follows: \$13.00 to \$13.50 for No. 1, \$10.00 to \$10.50 for No. 2 and \$9.00 to \$9.50 for box. Cypress lumber and shingles are in good demand, while stocks are only moderate, especially in the better grades. The following table represents the prices current at this date:

Kiln-dried North Carolina pine lumber f. o. b. at this port is quoted as follows:	
5-4 rift No. 1.....	\$37.50 ⁰⁰
5-4 rift No. 2.....	16.00 ⁰⁰
5-4x10 No. 1.....	20.00 ⁰⁰
5-4x12 No. 1.....	20.50 ⁰⁰
5-4x10 No. 2.....	15.00 ⁰⁰
5-4x12 No. 2.....	16.00 ⁰⁰
5-4 edge No. 1.....	17.50 ⁰⁰
5-4 edge No. 2.....	13.50 ⁰⁰
4-4 rift No. 1.....	25.00 ⁰⁰
4-4 rift No. 2.....	18.00 ⁰⁰
4-4 rift No. 3.....	18.50 ⁰⁰
4-4 rift No. 4.....	19.00 ⁰⁰
4-4 rift No. 5.....	15.00 ⁰⁰
4-4x12 No. 2.....	15.00 ⁰⁰
4-4 edge No. 3.....	9.50 ⁰⁰
5-4 edge No. 3.....	10.50 ⁰⁰
4-4x8 10 and 12 culls or box.....	9.00 ⁰⁰ 10.50
4-4x8 4 edge, cull or box.....	8.50 ⁰⁰
VIRGINIA PINE.	
4-4 flooring boards (dry and clear).....	13.50 ⁰⁰ 14.50
4-4 flooring boards (rough).....	7.50 ⁰⁰ 8.50
SHINGLES.	
No. 1 hearts, split, car lots.....	6.50 ⁰⁰ 7.75
No. 2 hearts, split, car lots.....	5.50 ⁰⁰ 6.25
No. 1 saps, split, car lots.....	4.75 ⁰⁰ 5.50
No. 2 saps, split, car lots.....	4.50 ⁰⁰ 5.00
No. 1 sawed hearts, car lots.....	6.50 ⁰⁰ 7.25
No. 2 sawed hearts, car lots.....	5.00 ⁰⁰ 5.50
WOOD.	
Hard, per cord.....	2.75 ⁰⁰ 3.00
Pine, per cord.....	2.75 ⁰⁰ 3.00
STAVES.	
Red oak hogshead, prime.....	38.00 ⁰⁰
Red oak hogshead, culls.....	22.00 ⁰⁰
White oak hogshead, prime.....	50.00 ⁰⁰
White oak hogshead, culls.....	38.00 ⁰⁰ 30.00
White oak heading, prime.....	50.00 ⁰⁰
White oak heading, culls.....	26.00 ⁰⁰

Charleston.

[From our own Correspondent.]

CHARLESTON, S. C., November 23.

The conditions which surround the lumber market at this point are all very favorable at present, and the indications are that the winter season's trade will be considerable in volume. There is a good demand from Northern points, and throughout the list of values there is a little more firmness. The foreign inquiry is light, and advices from Europe are not of such a tone as to induce shipments at present. Advices from the interior of the State represent all the mills as fully engaged on orders, and some are considerably behind in their work. There is plenty of logs, and most of the mills here and at George town have sufficient to keep them busy for the next thirty days. Prices are as follows: Merchantable lumber \$14.00 to \$16.00 for city sawed, and \$12.00 to \$14.00 for railroad. Square and round timber is quoted \$9.00 to \$13.00 for railroad, and \$8.00 to \$11.00 for raft. Dock timber \$4.50 to \$6.50, and shipping \$8.50 to \$10.50. Shingles \$5.00 to \$7.00 per thousand. The shipments of lumber during the week were

as follows: Schooner Georgetta Lawrence, for New York, with 280,480 feet of yellow pine, and the brig Eugene Hale, for Boston, with 259,260 feet. Coastwise freights on yellow pine lumber are steady, with a moderate demand for handy-sized vessels. Rates are as follows: To New York \$5.00, to Philadelphia \$4.75, and some business has been done with Providence on private terms. Crossties, thirty-six feet, are quoted thirteen cents each.

EXPORTS OF LUMBER FROM CHARLESTON FROM SEPTEMBER 1, 1891, TO NOVEMBER 18, 1892.

Exported to	1892-'93. Feet.	1891-'92. Feet.
New York.....	6,435,156	7,481,192
Boston.....	259,260	
Philadelphia.....	1,627,060	1,675,000
Baltimore.....	440,600	534,000
Other United States ports.....	397,600	998,000
Total coastwise.....	8,468,416	10,688,192
Great Britain.....		
Palermo.....		
France.....		
West Indies.....	440,759	
South America.....		468,300
Nova Scotia.....		
Other foreign ports.....		185,474
Total foreign.....	440,759	653,794
Grand total.....	8,909,175	11,341,966

Savannah.

[From our own Correspondent.]

SAVANNAH, GA., November 20.

The market for lumber has been quiet during the past week, and while the volume of trade is not as large as usual, there is a very buoyant tone throughout all branches of the lumber and timber trade. From the interior of the State reports continue very favorable, and throughout the milling section there is a fair business in progress. During the past week the demand has been mostly of a domestic character, and Baltimore, New York and Philadelphia have taken the bulk of the shipments. The exports for the week were 1,860,605 feet of lumber, 410,000 shingles, 513 cedar logs and 3,000 staves. Since the 1st of September the total shipments have been 27,185,324 feet of lumber, 2,077,000 shingles, 358,200 crossties, 1,354 cases cedar, 1,933 cedar logs, 72,200 staves and 1,230 bundles of laths. Among the heavy shipments by the Georgia Lumber Co. were 500,000 feet of lumber per schooner Josephine and 320,000 feet per schooner Mary J. Cook, both for Baltimore. In the list of values there is a steady tone prevalent, and for choice grades of lumber values are a shade firmer. Easy sizes are quoted at \$11.50 to \$13.00, ordinary \$12.00 to \$16.50, difficult \$14.00 to \$25.00, flooring boards \$14.50 to \$22.00, and shipstuff \$15.50 to \$25.00. Lumber freights are dull and nominal, with a liberal offering of handy-sized vessels. The rates from this and nearby ports of Georgia are quoted nominally at \$4.25 to \$5.00 for a range including Baltimore and Portland, Me. To the West Indies rates are nominal; to Rosario, \$16.00 to \$17.00; Buenos Ayres or Montevideo, \$14.00; Rio Janeiro, \$15.00, and Spanish and Mediterranean ports, \$12.00. Rates to the United Kingdom for orders are nominal for lumber at £4 10s. per standard. Steamer rates are quoted at \$7.00 to New York, \$8.00 to Philadelphia and Boston, and \$6.50 to Baltimore.

Brunswick.

[From our own Correspondent.]

BRUNSWICK, GA., November 21.

A very active movement is present here in the lumber market, and the shipments for the current month are heavy. There is considerable activity at all milling points adjacent to the city, and, indeed, throughout the State the industry is in a most flourishing state. Our shipments embrace cargoes to all Northern ports, and the demand is much more active from the West Indies and South America. The foreign demand is much better, and some large deals are at present in suspense awaiting action on advices from Europe. The Brit-

ish steamship Coventry was cleared at the custom-house this week by the Brunswick Terminal Co. for Dunkirk and London, and among the cargo was 40,000 feet of boards and 1,300 tons phosphate, besides 2,408 bales of cotton, and the total value of shipment was \$124,122. The bark Daphne cleared for Waterford, Ireland, with lumber, and the bark George Peak will sail with timber for the United Kingdom. The following vessels are loading for Northern ports: Schooners Senator Sullivan and Florence Frederick for New York and Jonathan May for Philadelphia. The bark Parthenia, loaded with lumber, sailed this week for Cardiff.

Mobile.

[From our own Correspondent.]

MOBILE, ALA., November 21.

The lumber market at this port cannot be called dull, judging from the number of vessels now loading, and while the hewn timber trade is somewhat depressed, there is a large volume of business in lumber. The shipments of timber, in spite of low prices on the other side, are being made readily, as it is cheaper to make a loss on cargo than pay demurrage on vessel. Trade with South America is increasing, and there is a good demand from that section. Mexico and the West Indies are good buyers, and the Seaboard Manufacturing Co. has been making large shipments of cypress lumber to the North and East. In the list of values hewn timber, which is in good demand, is in light supply and is quoted at 14 cents, with sales at 14 1/2 and even 15 cents for superior quality. Sawn timber, good quality 40-feet average, is quoted 13 1/2 to 14 cents. The shipments of sawn timber for the week were 24,906 cubic feet, and since September 1 293,109 cubic feet. Exports of hewn timber were 27,846 cubic feet, and since September 1 455,647 cubic feet. The exports of lumber for the week were mostly to coastwise ports, with the exception of one cargo to Cuba and 26,462 feet for Liverpool. Total shipments of lumber for the week were 1,891,237 feet, and since September 1 12,038,963 feet, against 8,975,499 feet for the corresponding period last year. The total shipments of lumber and timber from this port for the months of September and October were 18,499,774 superficial feet. Lumber freights are unchanged. To the West Indies the rates are \$6.00 to \$7.00 per thousand, coastwise \$6.00 to \$7.00 per thousand and to Rio Janeiro \$18.00 nominal. Timber to the United Kingdom is quoted at 28s. to 30s. for hewn per load, sawn timber £4 10s. to £4 15s. per standard. Deals per standard are quoted at £4 10s. to £4 15s.

Pensacola.

[From our own Correspondent.]

PENSACOLA, FLA., November 23.

The movement in lumber and timber during the past week has been of fair proportions, and the market may be called active. The demand is principally for lumber, and comes from both foreign and domestic ports. Both hewn and sawn timber are dull, in sympathy with the depression on the other side, and prices are not showing any strength; however, under these conditions, shippers are busy and want to do business. Mills are all busy, and throughout this section of the State there is a large business doing in cutting railroad timber. The shingle industry is growing, and prices for all grades are very firm. Among the shipments for the week were 506,900 feet sawn timber and 16,000 feet of lumber for Cardiff. For Havre, France, a shipment was made of 658,000 feet of sawn timber and \$5,000 feet of lumber. The Southern States Land & Lumber Co. shipped over 1,000,000 feet of lumber to Philadelphia and 500,000 feet of lumber to New York. Lumber freights remain unchanged at quotations given a week ago.

Memphis.

[From our own Correspondent.]

MEMPHIS, TENN., November 21.

The local country trade has improved to a large extent during the past few days. The shipping business is as good as one could ask, and steadily improving. The sales are larger and of better quality, and payments are made more promptly than usual. The agricultural implement makers are putting in some good contracts for dimension stuff. They are learning that the timber of the South is closer grained and better adapted for their purposes than the best of the Michigan and extreme Northern woods.

There is a large amount of dullness in the English export trade; this is a business that is so easily overdone. The general reports show that as a rule the supply of American lumber and timber was greatly increased during the month of October, that month closing with 25 to 35 per cent. more of American stock on hand than did September. This is especially the case with the common and ordinary grades both of lumber and of logs; especially is the market overstocked with oak staves. This may not be the English report, but it is the way that market looks to the Memphis foreign shippers.

Among the last week's visitors to the office were Frank P. Woolen, in charge of the Chicago end of the big hardwood lumber firm of Chicago and the Mississippi Delta, L. V. Boyle & Co. He was here on an inspection of their lands and plants in the Delta. He seemed to be very sanguine as to the outlook for hardwoods for the fall and winter. Their product all goes to their yards in Chicago or shipped on orders from there. He felt assured that there was much of encouragement in the political and financial situation throughout the South, even though the crop promise was far from flattering.

S. M. Clement, of Clement & Ashley, saw mill men, of Hernando, Miss., also called. Their mill cuts about 10,000 feet a day of poplar, which is mostly shipped here or handled from here. He said they were fully satisfied with the results of their summer's work, prices, etc. They had pretty well exhausted the poplar on such of their own land as was available to the mill and railroad, and were securing contracts to cut the timber on a tract of other lands near them. This will about finish what there is left of the poplar in that portion of the Delta. The associate branches of the lumber business are doing a thoroughly satisfactory business, working full or overtime and getting good prices therefor.

The belting and mill machinery supply men all report a good business and collections prompt.

There are no changes as yet in prices, although the heavy hardwood men say that they will be compelled very soon to make a material advance.

BLACK WALNUT.	
1st and 2d, 1, 1 1/2 and 2-inch.....	\$65.00@ 70.00
Common.....	35.50@ 40.00
Counter tops.....	90.00@ 110.00
ASH.	
1st and 2d clear, 1 to 4-inch.....	24.00@ 30.00
Common.....	12.00@ 14.00
CYPRESS.	
1-inch, 1st and 2d clear.....	22.00@ 24.00
1 1/2, 1 1/2 and 2-inch.....	24.00@ 26.00
Fencing 1x6, 16 feet.....	15.00@ 16.00
POPLAR.	
1-inch, 1st and 2d clear.....	24.00@ 25.00
1 1/2 and 2 inches, 1st and 2d clear.....	26.00@ 28.00
Common boards.....	14.00@ 16.00
Dressed, 1, 1 1/2 & 2-in., 1st & 2d clear, 1-inch.....	24.00@ 30.00
Common dressed, 1-inch.....	16.00@ 17.50
Squares.....	22.50@ 26.00
COTTONWOOD.	
1 to 3-inch mill run, culls out.....	9.00@ 12.00
Squares.....	12.50@ 16.00
RED GUM.	
1st and 2d.....	16.00@ 20.00
Common and culls.....	8.00@ 10.00
OAK.	
1 to 4-inch, 1st and 2d.....	24.00@ 26.00
Common, 1 and 2-inch.....	13.00@ 15.00
Quarter oak, 1-inch, 1st and 2d.....	30.00@ 32.00
Quarter oak, 1 1/2-inch and up.....	34.00@ 36.00
White #1 higher.....	
YELLOW PINE.	
1st and 2d, 1 1/2 and 2-inch.....	18.00@ 20.00
Dressed.....	25.00@ 30.00
Flooring, 5 and 6 d and m.....	17.50@ 20.00
Flooring, 3 and 4 d and m.....	17.50@ 20.00
2d flooring.....	15.00@ 17.50
Heart step lumber.....	27.50@ 30.00
Ceiling, 1st and 2d, 3/4, 5/8 and 7/8.....	17.50@ 20.00
Ceiling, 1st and 2d, 3/4 and 7/8.....	16.00@ 18.00

Common f. o. b. Memphis.	12 50@	—
TIMBER (LOGS).		
Poplar.	6 00@	10 00
Cypress.	6 00@	9 00
Cottonwood.	3 00@	4 00
Gum.	3 00@	4 50
Oak.	6 00@	12 00
Ash.	8 00@	13 00
Black walnut.	15 00@	50 00
SHINGLES.		
No. 1 heart cypress, 16-inch.	3 00@	—
No. 1 sap, 16-inch.	2 25@	—
LATH.		
Poplar.	2 00@	2 75
Cypress.	—@	2 50
Pine.	—@	2 00

Beaumont.

BEAUMONT, TEXAS, November 19. Now that the political excitement has cleared away, lumbermen are settling down to business, and everything is moving along in the old way. The lumber market may be written fairly active during the past week, and the demand is well maintained, coming mostly from points beyond the State. A better feature in trade is the liberal supply of cars, which tends greatly to facilitate shipments, which are being promptly made and stocks reduced. A prominent shipper of lumber, Col. C. Bender, says: "The lumber business is better than it has been for a long time. All the mills along the line of the East & West Texas road are making heavy shipments, with good facilities for handling lumber." Opinions of such men are valuable, and show the true tendency of the lumber industry. The Beaumont *Journal*, in its review of the market, says: "General trade has been fairly active during the week with markets outside of the State, but Texas dealers have made only small purchases. Still there is no cause for complaint, the general volume coming up fully to expectations. The car supply is ample at this time, and shipments of both yard stock and bill stuff are being promptly made. Prices are well maintained. The demand for shingles continues good." At Orange, Texas, and Westlake and Lake Charles, La., the movement is improving and all the mills are fully engaged in getting out their orders with dispatch. There is a good general demand for railroad timber, and orders are coming in freely. The annual meeting of stockholders and directors of the Reliance Lumber Co. will take place at the company's office in this city on next Thursday. All the features of the market, both at this point and through the Southwest, are very encouraging, and a very strong movement will prevail during the winter and early spring. The building up of towns and cities throughout the State is creating a better demand for lumber, and reports from all agricultural sections are more cheerful.

IRON MARKETS.**Philadelphia.**

[From our own Correspondent.]

PHILADELPHIA, November 22.

There continues to be a good demand for pig iron at the quotations of a week ago, although the placing of orders during the past month by many of the largest consumers for material sufficient to cover their requirements until after the beginning of the new year has somewhat lessened the number of inquiries for crude metal. Since these purchases have also taken many of the producers out of the market for the present, the competition for business is, therefore, not so active, and the slackened demand has had no appreciable effect on the market. Furnacemen and their agents are somewhat disturbed over the possibilities of a further increase in the output by the blowing in of more of the idle furnaces, with the influences which this course will have upon the future condition of the market. January and February are usually months of restricted demand in the iron trade, and, while the accumulated stocks are gradually disappearing in the face of an active consumption, which has also absorbed current production, both buyers and sellers appear to be satisfied to await the

outcome of the next few weeks before closing much new business. At the present time the market is without any evidences of weakness, and it is only the possibilities of the future that causes a cautiousness in regard to orders for the new year. Both producers and consumers are in a position to wait until the market clears itself. Sales of the best brands of foundry and mill irons have been made at full-quoted rates, and even where the quality is not of the first, prices are firmly maintained. For tide-water delivery, or its equivalent, the following are the current quotations for the best grades of iron. On orders for Southern iron at points 100 miles west and south of here the usual concessions continue in force:

Standard Pa. No. 1 X.	\$15 00@	15 75
" No. 2 X.	14 00@	14 75
" Forge.	13 00@	13 50
Southern coke No. 1 foundry.	14 75@	15 00
" No. 2 "	13 75@	14 25
" gray forge.	13 00@	13 50

Pittsburg.

[From our own Correspondent.]

PITTSBURG, November 22.

The situation in this market remains fairly good, and there are no complaints on the outlook for the winter and spring months. The demand has not fallen off, as was generally anticipated, although there is no particular rush about the buying. In all respects the market is the same as it has been during the closing weeks of the summer and the early fall. What was bought was either for immediate use or for delivery up to the beginning of the new year. There may be a shut off of the transactions during December, but the indications now are that there will be little or no change, as all lines have been placed on such a basis that there will not be much room to advance, and certainly none at all to drop lower.

Bessemer is perhaps a trifle stronger than it was and may become more so, but that hope does not extend any farther. The other lines of pig are positively chained down to the level they occupy, but there is some compensation for this in the fact that the demand is good and remains steady. In fact, all grades are having a fair market, with the advantage on the side of Bessemer, gray forge and of course the staple foundry and mill irons. The quotations are unchanged:

Gray forge.	\$12 50@	12 60
Mill iron.	12 50@	13 00
Foundry No. 1.	14 00@	14 25
" No. 2.	13 00@	13 25
Bessemer.	13 75@	—

Sales this week included 15,000 tons gray forge at \$12.50, 12,000 tons Bessemer divided at \$13.75 and \$13.85 in different sized lots, and some Southern charcoal.

Wheeling.

[From our own Correspondent.]

WHEELING, W. VA., November 22.

The metal market continues undisturbed by any influence and presents very favorable characteristics. Demand for all qualities of pig iron is firm and active, and any prestige that has been gained in the past few weeks is held with assurance. The finishing mills are still working up to capacity and taking as much iron as they have at any time in the past two years. There is no indication of an abatement of this demand for a long time yet, for most concerns are sold well into next year. Although mill irons show the greatest strength, Bessemer is in better demand than it has been for some time, and gives promise of continued activity. The steel mills will not be able to do more than fill orders already taken before the middle of January or later, and prospects are that by that time they will be sold as far ahead as they now are. Taken as a whole, surrounding conditions in all lines are first-class and there is no room for complaint. Furnaces that were reported last week as having demanded better rates for deliveries after the first of the year still stick to this demand with firmness, and probabilities are

that unless some unlooked-for circumstance arises to check the present good feeling the first three months of 1893 will be reckoned among the best that the iron business has seen in quite a long while. Several fairly good-sized sales of Southern iron, both foundry and mill, are reported for the last half of last week. The prices secured for these consignments are a little better than those quoted two or three weeks ago. The falling off in the speculative buying which was noted last week has had a good effect on legitimate dealing, and the removal of the speculators from the market has increased the confidence of both furnacemen and finishers. There is a general belief that the present production of pig iron will not be increased in the near future unless there is a phenomenal increase in the demand. This is another good result of the discontinuance of speculation, for it is a fact that two or three weeks ago several idle furnaces contemplated resuming in response to the fictitious demand then existing. Prices are quoted as follows in the Wheeling market:

No. 1 mill iron.	\$12 50@	12 75
Same for future delivery.	12 65@	12 85
No. 1 Southern mill iron.	12 35@	12 50
No. 1 foundry.	14 75@	15 00
No. 2 "	13 75@	14 00
No. 3 "	13 00@	12 25
Bessemer.	13 85@	14 00

Chicago.

CHICAGO, November 19.

The presidential election has ceased to be the sensation of the hour, and business is again going on without interruption. During the last week the total aggregate of sales has been large for this period of the year. Moderate transactions have taken place in Northern and Southern charcoals, but for the most part buying has been confined to cokes. Southern furnaces have received a good demand and a number of fair-sized contracts have been closed by them, these on a basis of \$10.00 Birmingham for No. 2 foundry, other grades in proportion. The demand in this market is at present divided about equally between foundry and soft metal. Reports from various sections show that the furnace companies generally are well sold ahead, and in some cases to such an extent that no further contracts of size can be handled for the next five or six months. The general conditions all remain healthy, and while the architectural iron-makers and jobbing foundries report a falling off in work, consumption in other lines is heavy and in excess of same time a year ago.

We quote for cash f. o. b. Chicago:

Southern coke No. 2 foundry.	\$13 50@	14 00
" No. 2 soft.	13 25@	13 75

ROGERS, BROWN & MERWIN.

Cincinnati.

CINCINNATI, November 19.

Politics have mingled with business to a considerable extent during week under review. On the one hand, we have learned of new enterprises that would be abandoned on account of the verdict of the country on the tariff. Reports have been printed also of cancelled contracts and diminished work. On the other hand, expressions of satisfaction are freely heard. One enthusiastic manufacturer writes us doubling his order, and recording his belief that we have now entered upon a period of great prosperity in which the smaller manufacturer will share, though the great trusts may suffer. Opinions aside, however, the fact remains that the election has had no appreciable effect upon current business. Actual demands for iron are taking stocks from furnaces as fast as made, and the tendency is towards steady hardening of prices. Naturally, the evidence of changed temper of the country on the subject of protection has a tendency to check all blowing in of furnaces now idle. So far as the South is concerned, the stacks that have gone out for repairs outnumber those that have gone in, the net result being the decrease of production. There is no prospect of any large

increase of output in the North until the whole situation is defined and values have further advanced.

The run of moderate-sized orders during the week has been exceptionally good. The aggregate is up to the limit of an active market. Cincinnati is to-day distributing more pig iron than ever before in its history. Southern coke irons continue the principal feature in transactions. These are supplemented, however, by numerous sales of Ohio strong irons, Ohio softeners, car-wheel irons and specialties. Some sizeable trades were closed in Lake Superior charcoal iron at full prices.

Summing up generally, the position seems to be that buyers intend to move cautiously until they are satisfied that no radical changes are confronting us, and when this conclusion is reached the business of the country will go on broadening under the influence of natural forces that are more powerful than political changes.

We quote for cash f. o. b. cars Cincinnati:

Southern coke No. 1 foundry.	\$13 75@	14 00
" No. 2 foundry.	12 50@	12 75
No. 1 soft.	15 50@	16 00
Hanging Rock coke No. 1.	18 50@	19 50
" charcoal No. 1.	16 00@	16 50
Tennessee charcoal No. 1.	16 00@	16 50
Jackson county stone coal No. 1.	16 00@	16 50
No. 2 "	17 50@	18 00
Southern coke, gray forge.	11 50@	11 75
" mottled.	11 00@	11 25
Standard Alabama car wheel.	18 00@	19 00
Tennessee car wheel.	17 00@	17 50
Lake Superior car wheel.	17 50@	18 00

ROGERS, BROWN & CO.

St. Louis.

ST. LOUIS, November 19.

This market has been rather quiet during the past week, as almost everyone seems to have bought for deliveries up to January 1st. Buyers are slow to make purchases for deliveries commencing first of next year, as they want to see what effect the recent election will have on the market.

We do not hear of any weakness on the part of furnaces in regard to price. They all report being sold ahead and prices are strictly maintained.

We quote for cash f. o. b. cars St. Louis:

Southern coke No. 1.	\$14 50@	14 75
No. 2.	13 25@	13 50
" No. 3.	12 75@	13 00
" gray forge.	12 25@	12 50
" charcoal No. 1.	16 00@	16 50
Missouri No. 1.	14 50@	15 00
Ohio softener.	16 50@	17 00
Lake Superior car wheel.	18 00@	18 25
Southern " foundry coke.	18 50@	18 75

ROGERS, BROWN & MEACHAM.

Louisville.

LOUISVILLE, November 19.

Pig iron has been less active during the week under review than for some weeks previous. There appears to be some hesitancy on the part of buyers about placing large contracts so soon after the election, and some are even inclined to believe that prices will be but little, if any, higher in the near future, and possibly may be lower. We think as a general thing the trade is not apprehensive of the tariff question, and realize that there are good reasons for a strong iron market. It is natural there should be some lethargy in the market just at this time, but prices remain firm.

BLAST FOUNDRY IRONS.	
Southern coke No. 1.	\$13 50@
" No. 2.	12 50@
" No. 3.	12 00@
" charcoal No. 1.	16 00@
" No. 2.	15 50@
Neutral coke.	11 50@
Mottled.	11 00@
CAK-WHEEL AND MALLEABLE IRONS.	
Southern (standard brands).	20 00@
" (other brands).	18 50@
Lake Superior.	19 50@

HALL BROS. & CO.

THE British steamship *Thordisa* was cleared on the 16th instant from Pensacola, Fla., by Messrs. Ross, Howe & Merrow for Liverpool. Her cargo consisted of 7,610 bales of cotton, weighing 3,805,898 pounds and valued at \$323,425. This is one of the largest cargoes that has ever left a United States port. The same steamer carried last season from New Orleans 6,322 bales of cotton, weighing 3,052,505 pounds, which shows a gain in her Pensacola cargo as compared with New Orleans of nearly 25 per cent.

CONSTRUCTION DEPARTMENT.

WE PUBLISH, every week, a list of every new factory, of whatever kind, projected anywhere in the South; every railroad undertaken, and every mining company organized. This information is always fresh, and, by enabling manufacturers to correspond with the projectors of such enterprises before their supplies of machinery have been purchased, is of great value. Manufacturers will find it to their interest to read this department carefully each week.

* Means machinery is wanted, particulars of which will be found in "Machinery Wanted" columns.

In correspondence relating to matters reported in this paper, it will be a favor if it is stated that the information was gained from the MANUFACTURERS' RECORD.

ALABAMA.

Birmingham—Sash and Blind Factory.—W. P. Brewer is enlarging his sash and blind factory.

Birmingham—Motor Works.—C. A. Loring is endeavoring to organize a stock company for the manufacture of spring motors.

Birmingham—Cotton Compress.—Messrs. Bradford & Co. will build a \$12,000 cotton compress building. J. W. McClain has prepared plans for it.

Bridgeport—Woodenware Factory.—The Sefton Manufacturing Co., of Chicago and Anderson, Ind., may establish a butter-dish, etc., factory in Bridgeport.

Bridgeport—Car Works.—The Bridgeport Land Co. is negotiating with the Southern Iron Car Co. for the location of car works in Bridgeport.

Douglasville—Saw Mill.—Alexander Ashton is erecting a saw mill.

Huntsville—Creamery.—Endeavors are being made for the erection of a creamery. George J. Motz can give information.

Mobile—Wharf, etc.—The Mobile Transportation Co. will build a wharf and bulkhead 670 feet long and 40 feet wide.

Tuscaloosa—Water Works.—The city council has lately granted a franchise to the Electric Light & Water Works Co., and the water works plant will be built at once.

ARKANSAS.

Black Rock—Shingle Mill.—The Black River Lumber Co. is putting in a shingle mill.

FLORIDA.

Citra—Packing-house.—A packing-house will be built by the Consolidated Orange Co.

Hague—Saw, Shingle and Planing Mill.—E. J. Pearce is putting in a saw, planing and shingle mill.

Leesburg—Packing-house.—The Consolidated Orange Co. will erect a packing-house.

Oviedo—Packing-house.—The Consolidated Orange Co. is to build a packing-house.

Orlando—Packing-house.—The Consolidated Orange Co. will build a packing-house.

Plant City—Packing-house.—The Consolidated Orange Co. will build a packing-house.

San Mateo—Packing-house.—A packing-house will be built by the Consolidated Orange Co.

GEORGIA.

Atlanta—Brick Works.—S. F. Knapp, T. H. Cain, of Fulton county, Ga., and J. R. Cain, of Nebraska, have incorporated the South River Brick Co. for the manufacture of brick and sewer pipe, etc. Their capital stock is \$25,000.

Augusta—Boiler Works.—George R. Lombard & Co. are putting additional machinery in their boiler works.

Brunswick—Carriage Factory.—Allen J. Braswell is endeavoring to organize a stock company to manufacture carriages.

Cartersville—Water Works.—The city council has appointed a committee, Messrs. F. M. Ford, J. G. M. Montgomery and James Knight, to obtain plans, specifications and cost of a water works plant.

Pine City—Land Improvement.—The Pine City Tropical Home Co. has been organized with a paid-up capital of \$500,000 to improve land for suburban city, etc. P. P. Mast, of Springfield,

Ohio, is president. J. M. Miller, also of Springfield, is interested.

Swainsboro—Tobacco Factory.—The establishment of a tobacco factory is talked of.

KENTUCKY.

Carrollton—Carpet Factory.—A. R. Marlett has started the manufacture of carpets.

Covington—Construction Company, etc.—E. F. Abbott, B. R. Morton and G. M. Abbott have incorporated the Cincinnati Contract, Construction & Improvement Co. to construct, improve and repair railways, bridges, etc. The capital stock is \$50,000.

Covington—Mining, etc.—G. M. Abbott, E. F. Abbott and B. R. Morton have incorporated the Washington Mining, Irrigating & Contracting Co. to purchase, sell and develop mineral lands, etc. The capital stock is placed at \$30,000.

Livermore—Cooperage.—A large cooperage plant is now being erected at Livermore by an Eastern company.

Louisville—Manufacturing Lubricants.—M. B. Cutler, B. F. Mitchell, J. H. Eaves and Jas. R. W. Smith have incorporated the Sumpter Automatic Lubricator Co. to manufacture and sell lubricators. Their capital stock is placed at \$300,000.

Louisville—Medicine Factory.—M. Makendorf and A. A. Schneiderhahn have incorporated the Golden Seal Remedy Co. to manufacture the Golden Seal remedy. Their capital stock is \$10,000.

Newport—Electric-light, Gas and Water Company.—James M. Glenn, Samuel Bingstaff and James C. Wright have incorporated the Sulphur Supplying Co. to supply water, gas and electricity. The capital stock is \$100,000.

Newport—Manufacturing Illuminated Signs.—William R. Garner, Lucius Desha, Harry H. Deputy, Francis M. Kidd and Dudley A. Glenn have incorporated the Illuminated Street Car Sign Co. to manufacture Mr. Garner's patent illuminated sign. Their capital stock is placed at \$25,000.

MARYLAND.

Baltimore—Brewery.—The National Brewing Co. will at once repair its brewery, reported in this issue as damaged by fire.

Baltimore—Paper-box Factory.—Jerome Diggs and William Osbourn, of Baltimore county, and William H. Hamilton, G. Henry Uhlenberg and Charles Engelhardt have incorporated the E. A. Jones Paper Box Co. to manufacture paper boxes, etc. Their capital stock is placed at \$10,000.

Baltimore—Vibrometer Manufacturing.—Emory J. Godman, Henry F. Garey, Harry F. Turner and William M. Conway, of Baltimore, and William Snowden, of Anne Arundel county, have incorporated the Vibrometer Co. for manufacturing purposes. Its capital stock is \$200,000.

Baltimore—Produce Company.—Robert E. Hopkins, Charles Knell, Harry Mann, Charles G. Mason and Louis J. Harrison have incorporated the Mason Produce Co. with a capital stock of \$10,000.

Berwood—Flour Mill.—The Gaithersburg Milling & Manufacturing Co. has purchased for \$10,000 Lyddane, Jones & Co.'s steam flouring mill at Berwood, and will operate it after January 1. The company has increased its capital stock.

Frostburg—Gas Works.—The Frostburg Gas Light Co. is making considerable improvements to its plant, putting in six retorts, etc.

Phoenix—Cotton-duck Factory.—The Mt. Vernon Co., of Baltimore, will erect a cotton-duck mill at Phoenix.

Washington, D. C.—Steam Cleaning and Scouring Plant.—A. Lerch is building a steam cleaning and dyeing establishment.

MISSISSIPPI.

Bogue Chitto—Dry-kilns.—The Keystone Lumber & Improvement Co. is rebuilding its recently burned dry-kilns.

Friar's Point—Cooperage.—Edwin Haynes, John McKinley, C. M. Charmley, Louis Reece and James Charmley have incorporated the American Cooperage Co. to manufacture barrels, etc. Their capital stock is \$100,000.

Meridian—Wheel Factory.—The Queen City Wheel Co. will rebuild its factory, reported in this issue as burned.

Natchez—Undertaking Company.—John Keek, Samuel J. Perrault, Frank O'Brien and James Farrell have incorporated the Natchez Undertaking Co. with a capital stock of \$20,000.

Robinsonville—Saw Mill.—J. H. Vincent & Co. have built a saw mill.

NORTH CAROLINA.

Burlington—Flour Mill.—Mr. Ireland has purchased site and will erect a roller flour mill.

Gibsonville—Cotton Mill.—The Minneola Manufacturing Co. will put in new machinery.

Jacksonville—Saw Mill.—Richard Lamb has recently completed a saw mill.

Laurinburg—Corn and Saw Mill.—H. McN. Lyth will put in a corn mill, possibly saw mill also.

Monroe—Electric-light Plant.—The citizens have voted an issuance of \$15,000 of bonds for the equipment of an electric-light plant. The mayor can give information.

New Bern—Shingle Mill.—Frank, Raspberry, Kehoe & Pearce have equipped a shingle mill.

North Wilkesboro—Tobacco Factory.—The Winston Land & Improvement Co. will build a tobacco factory.

Reidsville—Cotton Mill.—The Reidsville Cotton Mills have put in new machinery.

Reidsville—Bag Factory.—Boyd & Co., mentioned recently as to start a bag factory, will operate as the Boyd Manufacturing Co.

Wilson—Water Works.—J. L. Ludlow, of Winston, will make surveys for a \$60,000 water works system at Wilson.

SOUTH CAROLINA.

Charleston—Phosphate Manufacturing.—Messrs. Arbuckle & King have started an establishment for manufacturing phosphate preparations.

Columbia—Cotton Company.—Jasper Miller is president; A. J. Miller, vice-president, and S. P. Miller, secretary, of the Miller Cotton Co., reported last week as incorporated.

Greenwood—Saw Mill.—C. L. McClinton is erecting a saw mill.

Sumter—Lath, Saw and Shingle Mill.—Joel E. Brunson will erect a saw, shingle and lath mill.

TENNESSEE.

Kingston—Flour Mill.—The establishment of a roller mill is talked of.

Memphis—Carriage Works.—The Memphis Carriage Co. has been chartered to manufacture carriages.

TEXAS.

Barnum—Lumber Mill.—W. T. Carter & Bro. have put new boilers in their lumber mill.

Gainesville—Crematory.—W. H. Garretson, of Dallas, has received contract from the city council to erect a \$30,000 crematory, to be completed within ninety days.

Galveston—Soap Factory.—Morris Butts & Co., of Chicago, St. Louis and Kansas City, have built a soap factory in Galveston and commenced operations. Its monthly output is 375,000 pounds. The firm intend to build another factory in Galveston and are now preparing plans.

North Galveston—Brick Works.—The North Galveston Pressed Brick Co. has built works with daily capacity of 25,000 bricks.

North Galveston—Compo-board Factory.—The Gulf Compo-Board Co. is erecting a \$20,000 factory for the manufacture of a substitute for plaster.

Uvalde—Water Works.—The Uvalde Water Supply & Power Co. is extending its mains about one and one-half miles.

VIRGINIA.

Lynchburg—Electric-light Plant, etc.—The Piedmont Electric Light Co. and the Lynchburg Street Railway Co. have consolidated.

Newport News—Ice Company.—The Crystal Ice Co. has been organized with a capital of \$50,000. J. D. Woldenholme, president; W. A. Post, vice-president, and John A. Willett, secretary and treasurer.

Salem—Tannery.—The Virginia Steam Tannery will shortly change its product from sole to beltng leather.

WEST VIRGINIA.

Belleville—Oil Company.—The Belleville Oil Co. has been incorporated.

Bluefield—Flour Mill.—The building for Gooch & McCue's recently reported flour mill is about completed, and equipment of machinery for a capacity of 100 barrels will be put in.

Camden—Lumber Mills, etc.—William Armstrong, of Belpre, Ohio, and J. N. Camden, John B. McCoy, H. P. Camden and H. H. Moss, all of Parkersburg, have incorporated the Gauley Co. to own and operate lumber mills, coal mines, etc., capital stock \$1,000,000.

Charleston—Manufacturing Machinery, etc.—Edward Waldron, J. C. Taylor and J. R. Adams, all of Philadelphia, Pa., are the incorporators of the Waldron Construction Co., reported last week.

Huntington—Mercantile Company.—The Barlow-Henderson Co. has been incorporated with a capital stock of \$45,000 for the purpose of dealing in dry goods.

Martinsburg—Electric-light and Power Company.—The Martinsburg Electric Light & Power Co. has been incorporated.

Pickens—Lumber Mills, etc.—The Pickens Co. has been incorporated by J. N. Camden, John B. McCoy, H. P. Camden and H. H. Moss, of

Parkersburg, and William Armstrong, of Belpre, Ohio. Its purpose is to own and operate lumber mills, coal mines, etc.; capital stock \$250,000.

BURNED.

Arkansas City, Ark.—The lumber plant of the Desha Lumber & Planing Co. The loss is said to be \$600,000.

Baltimore, Md.—The National Brewing Co.'s plant, at Canton, was damaged to the extent of \$50,000.

Bryan, Texas.—G. S. Parker's cotton gin.

Floyd, Texas.—J. S. Robinson's cotton gin.

Laurens, S. C.—Allen Deal's cotton gin.

Lorena, Texas.—B. J. Maddox's cotton gin.

Meridian, Miss.—Taylor & Russell's saw mill.

Meridian, Miss.—The Queen City Wheel Co.'s factory; loss \$35,000.

Rico, Texas.—Bartlett & Haynie's cotton gin.

Sumter, S. C.—C. W. Chandler's ginnery.

BUILDING NOTES.

Athens, Ga.—A new building will be erected for the Athens Industrial Home. Mrs. H. C. White can give particulars.

Charlotte, N. C.—Depot.—The Carolina Central Railroad Co. (office, Wilmington) will build an 80-foot extension to its depot.

Chattanooga, Tenn.—T. H. McCallie has been granted building permit for his three-story brick business building. It will cost \$14,000.

Gainesville, Fla.—School Buildings.—J. R. Eddins has been awarded contract to erect five public school buildings in Alachua county.

Glen Arm, Md.—Charles J. Bonaparte, of Baltimore, will build a \$60,000 residence near Glen Arm.

Hickory, N. C.—Warehouse.—A large brick warehouse will be erected for Shuford, Setzer & Co.

Houston, Texas—School Buildings.—The erection of additional school buildings at a total cost of \$10,000 is proposed. The mayor can give information.

Knoxville, Tenn.—Opera-house.—The Grand Opera-House Co., which was organized last April to build a \$180,000 opera-house, has, it is stated, effected financial arrangements for the commencement of work early in the spring. The building contemplated is to be a four-story fire-proof structure, 92x244 feet, with seating capacity for about 1,600.

Macon, Ga.—Jail.—The Bibb county jail will probably be enlarged by the erection of an addition to contain five cells and two or more cages. Gilbert Davis can give information.

Manor, Texas—Hall, etc.—J. J. Parsley has contract for building the two-story Masonic hall, 36x75 feet, lately mentioned. Contractor Williams, of Austin, has contract for a brick block for John G. Wheeler.

Monroe, N. C.—Hall.—The town will build a hall. The mayor can be addressed.

Orlando, Fla.—Depots.—The Florida Central & Peninsular Railroad Co. (office, Jacksonville) has purchased a site for its new passenger and freight depots. W. R. Tucker will have the work in charge.

Pine City, Ga.—Hotel.—The Pine City Tropical Home Co., of which P. P. Mast, of Springfield, Ohio, is president, intends building a 52-room brick hotel at Pine City.

Velasco, Texas—College.—R. McChinn reports that all arrangements have been closed for building the \$100,000 college by the managers of the Odessa College fund.

Washington, D. C.—John A. Milburn will build a \$12,000 brick residence to have hot-water heating apparatus, etc.

RAILROAD CONSTRUCTION.

Anniston, Ala.—Railroad.—Mr. Gaboury and associates have been granted a franchise to build the Blue Mountain Mineral Railroad. The construction of this line, it is stated, will be followed by the extension of the East & West Railroad to Anniston as soon as that road is taken out of the hands of a receiver.

Bucatunna, Miss.—Railroad.—The Robinson Land & Lumber Co., which is building the Chickasawha & Jackson Railroad, writes that it is now constructing twelve miles of the road from the Chickasawha river in a northwestern direction, and the terminus eventually will be at Jackson, about 125 miles distant. The line will be standard gauge, and is designed as a lumber road. Five miles are already graded, and track-laying is in progress. George W. Robinson, of East Orange, N. J., is president of the railroad.

Clarksville, Md.—Electrical Railroad.—Dr. Wm.

tape, and have decided to make no advance in price over the old list.

THE Jacksonville (Texas) Canning Co. has contracted with Daniel G. Trench & Co., canning factory outfitters, of Chicago, for a complete outfit of the latest improved canning machinery.

THE Cushman Iron Co., of Roanoke, Va., has just closed the contract for furnishing the iron work for the Kenova station for the Norfolk & Western Railroad, and will begin work on the same at once. This company has nearly completed its contract on the Bluefield bank building, Bluefield, W. Va., for which Messrs. J. C. Jones & Co. are the builders, and is well along on the iron work for the Chamber of Commerce building at Richmond. The Cushman Iron Co. has opened a branch office in Richmond at No. 819 East Main street, and has put the same under the management of its treasurer, Mr. A. J. Coffin.

THE following are some of the buildings equipped during the past two months with the swinging hose rack manufactured by John C. N. Guibert, 115 Broadway, New York: Aurora Cotton Mills, Aurora, Ill., six; Merchants & Miners' Transportation Co.'s freight house, Providence, R. I., twelve; Woolson Spice Co., Toledo, Ohio, six; Ford Morocco Co., Wilmington, Del., two; Lehigh Salt Mining Co.'s breaker, Le Roy, N. Y., two; Fort Wayne (Ind.) Street Railway Co.'s power-house, four; Holstein Woolen Co., Salem, Va., two; Western Pennsylvania Asylum for Insane, Dixmont, Pa., two; Maine Eye and Ear Infirmary, Portland, Me., two; courthouse, Woodstock, Canada, twelve; Freehold Loan & Savings Co., Toronto, Canada; Victoria Methodist College, Toronto, Canada; Central Presbyterian Church, Denver, Col., four.

AN important administrator's sale of property suitable for manufacturing purposes is to take place December 1st at the new Real Estate Exchange, 203 E. Fayette street, Baltimore. This property is situated on the middle branch of the Patapsco river, fronting 455 feet on the river, with the right to build to port warden's line. It contains three acres and twenty-two perches and adjoins Horner's Fertilizer Works on the north, and is in the neighborhood of the Camden Consolidated Oil Works. It is within a square and a-half of the roundhouse of Baltimore & Ohio Railroad, with whose tracks it has the right to connect on street twenty-five feet wide, running from this property to Wells street. Its eligible location and accessibility presents one of the most attractive opportunities for either capitalists or manufacturers as an investment.

RECENT sales by the Jeffrey Manufacturing Co., Columbus, Ohio, include the following: Coaldale Mining & Manufacturing Co., Coaldale, W. Va., electric coal-mining plant, consisting of engine, boilers, dynamo and four Jeffrey electric coal-mining machines and electric drill; Congo Coal Mining Co., Columbus, Ohio, additional power plant, including dynamo and engine (second order); Osage Coal & Mining Co., Indian Territory, one Jeffrey electric mining machine (second order); John H. Wood & Son, Pittsburgh, Pa., six Jeffrey air mining machines and three power drills; Sturgis Coal Co., Sturgis, Ky., one Jeffrey air mining machine and two power drills; Hocking Valley Coal Co., Nelsonville, Ohio, one Jeffrey air mining machine (third order); also orders for power coal drills for shipment to Wyoming, Colorado, Indiana, New York and Scotland.

THE plant of McLanahan & Stone, Hollidaysburg, Pa., manufacturers of improved ore and phosphate-dressing machinery, is busily engaged on orders from different parts of the South. Among their recent orders is one set of four dash ore jigs for manganese from the Unaka Iron Co., Unicoi, Tenn., and one large patent steel log ore-washer for the Southern Iron Co., Acton, Tenn. The phosphate companies throughout Florida have recognized the superiority of their improved log washers, and many orders are being received for both wood and steel logs. Wood log machines have been shipped recently to the Standard Company, Archer, Fla.; the Trenton Phosphate Co., Fort Fannin, Fla., while the Peninsula Phosphate Co., Archer; T. W. Pitts & Co., Fort White, Fla.; the Albion Mining & Manufacturing Co., Albion, Fla., are among those having purchased their patent steel log machines.

OPPORTUNITIES FOR INVESTMENT

We shall be pleased to answer communications and give information concerning the following opportunities for investment. Address all correspondence to the MANUFACTURERS' RECORD, Baltimore, Md., and be particular to give the number of the advertisement to which you refer.

NO. 1—STREET RAILWAY.—The owners of a valuable street railway franchise in Texas, extending through the thickly-settled portion of a large city and into the suburbs, desires to place the securities of the company or to negotiate a loan to be used in the construction of the road. The cost of building the line is estimated

at \$60,000, and it is calculated to yield a gross annual revenue of \$30,000.

NO. 2—COTTON MILL.—A part owner in a Southern cotton mill which has been in successful operation for a number of years, desires to obtain money for the purchase of the other interests in the property. Ample security will be given for a loan of \$40,000.

NO. 3—IRON FOUNDRY.—An iron foundry engaged in the manufacture of a specialty for which there is a ready sale, has demand for twice its present output. The company desires to increase its capital to the extent of \$10,000 for the purpose of doubling the capacity of its plant.

NO. 4—HOTEL.—A hotel in a prosperous Southern city, which cost \$80,000, can be purchased for \$45,000, including all furniture and fixtures and about seventy-five lots adjoining, 25 by 150 feet. House is new and in good condition. Connects with business part of the city by granolithic sidewalks, and electric cars pass the hotel every five or ten minutes. Reasonable terms will be made with a responsible purchaser.

NO. 5—RAILROAD CHARTER.—The holders of a charter for a railroad 340 miles in length desire to secure the capital necessary for its construction. The line runs for nine miles through large deposits of iron ore; 100 miles of the line is through valuable fields of cannel and coking coal. There is a rich oil field on the route, and for 100 miles it traverses valuable timber lands containing oak, walnut, cherry, poplar and other woods. In the tributary agricultural territory 100,000,000 pounds of tobacco are produced.

NO. 6—PHOSPHATE LAND near Eureka, Fla., in the phosphate belt. It is heavily timbered with long-leaf pine; also a small tract near Fort Meade, Fla. Several small tracts in Marion, Orange, Lake, Polk, Pasco and Putnam counties, Fla., suitable for orange and vegetable growing.

NO. 7.—A MANUFACTURING COMPANY in Texas desires to place \$28,000 ten-year 8 per cent. mortgage bonds, the total issue being \$60,000, of which \$32,000 has already been sold. The proceeds are to be used for final payments on machinery and for working capital. The bonds are secured by the entire property of the company, consisting of factory building, machinery and real estate, all of which has a clear title and is free of any encumbrance.

NO. 8—PHOSPHATE LAND.—600 acres pebble phosphate land within one and one-half miles of two important and competitive railroads. Extensive deposits in sand and marl matrix from two to fifteen feet deep, and ranging from 30 to 80 per cent. pebble. Analyses show from 60 to 80 per cent. phosphate of lime.

NO. 9.—A tract of land located in the suburbs of Macon, Ga., and admirably adapted to manufacturing purposes, is offered for sale at reasonable price. The property is at the junction of three railroad lines, has abundant water supply, labor can be obtained cheaply, and all conditions requisite for industrial enterprises are present.

NO. 10.—About 10,000 acres of mineral and timber land in one tract in North Carolina can be purchased cheap. The minerals are copper, iron, silver and nickel.

NO. 11.—A tract of about 10,000 acres of timber land near Bristol, Tenn. Contains also several large deposits of iron ore which will soon be accessible by railroads now under construction.

NO. 12.—About 17,000 acres of coal and timber land in Scott and Wise counties, Virginia, near to both the Norfolk & Western and South Atlantic & Ohio Railroads.

NO. 13.—A copper ore property is for sale in North Carolina. There is an extensive deposit of ore upon which some development has been done with results that indicate the existence of a valuable property.

It is said that the tobacco crop in Florida is unusually fine this year and the percentage of wrappers much greater than last year. This will, it is thought, hold prices up to thirty or forty cents per pound. Growers are recommended to hold their leaf and market it slowly as the demand requires, thus avoiding the reduction in values which would come if it were forced in now.

THE citizens of Woodville, an ambitious town in Southwestern Mississippi, have under way a movement to establish a cotton factory. The town is located on a branch of the Illinois Central twenty miles from the Mississippi river, and is situated in a section growing a large quantity of long-staple cotton, and notable for originating the celebrated Southern Hope variety.

It enjoys the important advantages of cheap labor and an abundance of fuel, and it is desired to interest parties possessing experience and capital in the proposed enterprise. The citizens are prepared to invest capital in such a factory and lend it every encouragement, but lacking the needful experience, wish to interest outside parties. The prime movers in the project are L. T. Ventress and W. A. Elder, either of whom would be glad to answer correspondence on the subject.

HON. L. B. WOMBWELL, commissioner of agriculture of Florida, reports that from information received from correspondents in the twenty-three cotton-producing counties it appears that three-fourths of the crop has been gathered and four-fifths of this is out of the hands of the producers. The total yield of both Sea Island and upland is estimated as 48 per cent, as compared with 1891.

APPLICATION has been made for a charter for a steamboat company who propose running three steamers between Richmond and Norfolk, Va. The capital stock is \$10,000, with privilege of increasing to \$300,000. The officers named for the first year are M. E. Ingalls, president; A. H. Drewry, first vice-president; J. D. Platt, second vice-president; E. C. Barney, secretary and treasurer, and C. P. Burgwyn, engineer. The plan is to provide handsome and speedy steamers to run up and down the James river in daylight, giving passengers an opportunity to see places noted in the early colonial history of Virginia. The boats now running between those two points have neither the speed nor accommodations for passengers or freight which are required.

GEN. R. T. DYRENFORTH, J. W. Dickinson and J. H. P. King are in San Antonio, Texas, endeavoring to secure from the people of that city a contribution of \$2,000 to be used in carrying on rainmaking experiments. It is said that General Dyrenforth has a larger supply of explosives and more complete equipment otherwise than during the experiments last year. Messrs. King and Dickinson are representatives of parties who have supplied money with which to purchase the material. They say that if the experiments succeed they will go to the legislature and ask an appropriation of ten cents or so per acre for supplying rain to any given territory, the amount of rain to be measured by a gauge. They feel sanguine of success, and consider the experiment on purely a business basis.

Winter Excursion Tickets on the Pennsylvania Railroad.

The Pennsylvania Railroad Co. has placed on sale at all its principal ticket offices excursion tickets to all the prominent winter resorts. This territory includes the resorts of New Jersey, Virginia, North and South Carolina, Georgia, Tennessee, Florida and Cuba. The tickets are sold at the usual low rates, and the return coupons are valid until May 30th, 1893.

The magnificent facilities of the Pennsylvania Railroad, with its many connections, make this the favorite line for winter travel.

Winter Tours to California, Florida and Other Points of Interest.

Some idea of the amount of traveling done by Americans as a people, and the comfort and luxury at their command, is gathered from the Pennsylvania Railroad Co.'s announcement of its personally-conducted tours for 1893.

First comes a series to the Golden Gate, starting from New York, Philadelphia and Harrisburg February 8th, March 2d and March 29th, 1893. Tourists will travel by superbly-appointed special trains of Pullman drawing-room sleeping, dining, smoking and observation cars under the supervision of a Tourist Agent and Chaperon.

Next in importance comes a series of five to Florida—January 31st, February 14th and 28th, March 14th and 28th. The first four admit of two whole weeks in the sunny

South, while tickets for the fifth tour are good to return by regular trains until May 30th, 1893.

They will be conducted on the same general principles and maintained at that high standard manifested on all Pennsylvania Railroad Co.'s personally-conducted tours. For information and detailed itineraries now being prepared apply to Ticket Agents or Tourist Agents, 849 Broadway, New York; 860 Fulton street, Brooklyn, or 233 South Fourth street, Philadelphia. †

TABLE OF CONTENTS.

	Page.
Newspaper Opinions of the Southern Outlook	331
Shipping Florida Oranges to London	332
Importance of Savannah's Commerce	332
Cotton Culture in East Africa	333
Cotton Crop Guesses	333
Alabama Industrial and Scientific Society	333
Southern Interstate Road Congress	333
How Railroad Towns Grow	333
Southern Money in Southern Development	333
Improvements in South Baltimore	333
PHOSPHATES :	
The Florida Phosphate Industry	334
Mining Soft Phosphate	334
Phosphate Markets	334
Phosphate and Fertilizer Notes	335
IRON INDUSTRY :	
Prospects for Making Southern Steel	336
Southern Iron Notes	336
Improvement of Coke	336
Coal and Coke Notes	336
RAILROAD NEWS :	
Baltimore & Ohio	337
An Important Railroad Project in the Southwest	337
Richmond & Petersburg Annual Meeting	337
A New Southern System	337
Southern Railroad Notes	337
Mexican Notes	337
EDITORIAL :	
The Profit of a Smaller Cotton Crop	338
A Shipload of Florida Oranges for England	338
Steel-Making in the South	338
A Case of Distorted Vision	339
Atlanta's Growing Banking Facilities	339
MECHANICAL :	
Friction and Lubrication. II	340
Improved Machinery and Workmen's Wages	340
A Special Milling Cutter (Illus.)	340
The Clark High-Speed Engine (Illus.)	340
The Cutler Non-Inductive Ammeter (Illus.)	340
The Re, Regulating Lamp Socket (Illus.)	341
Cotton Market	341
Southern Textile Notes	341
LUMBER :	
Poplar in East Tennessee	342
Door and Blind Clamp (Illus.)	342
Farwell's Window Frame Pocket Cutter (Illustrated)	342
Southern Lumber Notes	343
Lumber Market Reviews :	
New York	343
Baltimore	343
Norfolk	344
Charleston	344
Savannah	344
Brunswick	344
Mobile	344
Pensacola	344
Memphis	344
Beaumont	345
IRON MARKETS :	
Philadelphia	345
Pittsburg	345
Wheeling	345
Chicago	345
Cincinnati	345
St. Louis	345
Louisville	345
CONSTRUCTION DEPARTMENT :	
New Enterprises	346
Building Notes	346
Railroad Construction	346
Machinery Wanted	347
Southern Financial News	347
Trade Literature	347
Trade Notes	347
Opportunities for Investment	348

MANUFACTURERS' RECORD.

Sixty-Sixth Annual Report of the Baltimore & Ohio Railroad Co.

The Annual Meeting of the Stockholders of the Baltimore & Ohio Railroad Company was held 21st instant at the office in the Central Building.

Mr. Reverdy Johnson was called to the Chair, and Mr. Andrew Anderson was appointed Secretary. President Mayer submitted the Sixty Sixth Annual Report for the nine months ended June 30, 1892. The Secretary read the Report to the Meeting. It is as follows:

SIXTY-SIXTH ANNUAL REPORT.

OFFICE OF THE BALTIMORE AND OHIO RAILROAD COMPANY, BALTIMORE, November 9, 1892.

To the Stockholders of the Baltimore and Ohio Railroad Company:

The President and Directors submit the following statement of the affairs of the Company for the nine months ended June 30, 1892.

The General Balance Sheet, the tabular statements of the General Auditor, and the report of the General Manager are appended.

By Resolution of the Board of Directors, January 20, 1892, the fiscal year of the Company was made to terminate thereafter on June 30 instead of September 30, chiefly in order that the Company's fiscal year might correspond with that fixed by the Interstate Commerce Commission.

The date of the Annual Meeting, at which the Annual Report is submitted to the Stockholders, remains unchanged, viz: the third Monday in November of each year.

The periods for the declaration and payment of dividends remain unchanged, viz: Declaration of dividend in April and October, payment thereof in May and November.

Owing to this change in the fiscal year a quarterly dividend of one and one quarter per cent. upon the Common Stock for the three months ended December 31, 1891, was paid May 17, 1892, and a dividend of two and one-half per cent. for the six months ended June 30, 1892, has been declared, payable in November.

To enable Stockholders to compare this Report with previous Annual Reports, the following tables are given for the old fiscal year ended September 30, 1892, as well as those for the new fiscal year ended June 30, 1892, viz:

Operations for the nine months ended June 30, 1892. Folio 5

Operations for the twelve months ended September 30, 1892, with comparison for the twelve months ended September 30, 1891. Folio 6

Gross Earnings, Expenses and Net earnings of each Division for the nine months ended June 30, 1892. Folio 7

Gross Earnings, Expenses and Net Earnings of each Division for the twelve months ended September 30, 1891 and 1892. Folio 8

Statement of Net Earnings and Income and Fixed Charges on all lines of the system, together with the Profit and Loss upon each, for the nine months ended June 30, 1892, (Table B) Folio 17

Statement of Net Earnings and Income and Fixed Charges on all lines of the system, together with the Profit and Loss upon each, for the twelve months ended September 30, 1892, (Table B) Folio 18

OPERATIONS FOR THE NINE MONTHS ENDED JUNE 30, 1892.

GENERAL INCOME ACCOUNT.

EARNINGS.

From Freights	\$13,100,441.22
Passengers	4,325,308.16
Mail	384,405.92
Express	496,700.30
Miscellaneous	620,718.75
Total Earnings	\$18,927,574.35

OPERATING EXPENSES.

General Expenses	\$1,275,478.49
Conducting Transportation	7,593,994.09
Maintenance of Equipment	2,727,291.73
Maintenance of Way and Structures	2,369,813.35
Total Expenses	\$13,866,577.66
Net Earnings	\$5,060,995.69

OPERATIONS FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 1892, WITH COMPARISON WITH THE TWELVE MONTHS ENDED SEPTEMBER 30, 1891.

GENERAL INCOME ACCOUNT.

EARNINGS.	Year Ended Sept. 30, 1891.	Year Ended Sept. 30, 1892.	Increase.	Decrease.
From Freights	\$16,813,019.92	\$17,422,583.42	\$609,563.50	
Passengers	5,974,541.53	6,612,433.89	637,893.36	
Mail	493,541.87	524,413.44	30,891.57	
Express	610,604.24	644,245.27	34,181.03	
Miscellaneous	639,227.35	8,0,470.74	191,243.39	
Total Earnings	\$24,539,394.91	\$26,034,167.76	\$1,503,772.85	

OPERATING EXPENSES.

General Expenses	\$1,608,883.17	\$1,730,459.55	\$121,576.38
Conducting Transportation	9,177,001.20	10,104,019.91	927,016.71
Maintenance of Equipment	3,309,438.73	3,559,908.56	250,469.81
Maintenance of Way and Structures	2,982,909.76	3,201,415.12	218,505.36
Total Expenses	\$17,078,232.86	\$18,595,801.14	\$1,517,568.28

Net Earnings from the operations of the property. See Table A.

Add Income from other sources.

Total.

Deduct Net Earnings from Washington Branch.

Available Income.

From which deduct Interest on Bonded Indebtedness, Rentals, Taxes and other charges for the year.

Balance.

PAYMENTS.

Dividend on 1st Preferred Stock @ 6% \$180,000

" ad " 120,000

300,000.00

612,428.75

312,428.75

Remainder.

\$1,792,174.57

\$1,847,290.42

\$55,115.85

From which payments have been made to retire Bonded Indebtedness, viz:

Principal Car Trust Bonds.

Principal Equipment Trust Bonds, Series A.

Principal Equipment Trust Bonds, Series B. (1st Payment)

Payment to the City of Baltimore for the purchase of its interest in the Pittsburgh and Connellsville Railroad.

Cash Appropriations to Sinking Funds.

Somerset and Cambria Railroad Traffic Bonds

40,000.00

58,057.81

23,500.00

40,000.00

58,057.81

26,000.00

2,500.00

\$471,557.81

\$674,057.81

\$302,500.00

Leaving a balance of.

\$1,320,616.76

\$1,173,232.61

\$147,384.15

GROSS EARNINGS, EXPENSES AND NET EARNINGS OF EACH DIVISION.

The following table shows the gross earnings, the expenses and the net earnings of the Main Line and Branches and each Division of the System for the nine months ended June 30, 1892:

GROSS EARNINGS, EXPENSES AND NET EARNINGS OF EACH DIVISION FOR THE NINE MONTHS ENDED JUNE 30, 1892.

	Gross Earnings	Expenses	Net Earnings.
MAIN STEM DIVISION, including the Main Stem and Branches, also the Winchester and Potomac, the Winchester and Strasburg Railroad, the Harrisonburg Branch, the South Branch Railroad, the Fairmont, Morgantown and Pittsburgh Railroad, the Washington County, the State Line and Confluence and Oakland Railroads.	\$9,034,046.64	\$6,011,608.48	\$3,022,438.16
PARKERSBURG BRANCH.	614,648.53	533,149.30	82,499.22
WASHINGTON BRANCH.	519,661.60	399,897.19	119,764.41
PHILADELPHIA DIVISION, embracing the Baltimore and Philadelphia Railroad and Philadelphia Branch.	1,443,004.82	1,025,047.57	415,957.25
PITTSBURG DIVISION, embracing the Pittsburgh and Connellsburg Road, the Hickman Run Branch, the Somerset and Cambria Railroad, the Mount Pleasant and Broad Ford and Fayette County Branches, the Berlin Railroad, and the Ohio and Baltimore Short Line, Eastern Division.	3,262,066.94	2,580,836.26	682,230.68
WHEELING, PITTSBURG AND BALTIMORE DIVISION.	481,058.05	335,519.84	44,518.21
MIDLAND DIVISION.	246,310.24	228,781.13	18,529.11
CENTRAL OHIO DIVISION.	1,037,764.03	862,550.49	175,213.54
LAKE ERIE DIVISION.	748,695.29	625,812.61	123,887.47
STRAITSVILLE DIVISION.	109,919.81	115,753.23	Def. 5,834.48
CHICAGO DIVISION.	2,269,954.40	1,865,867.38	400,087.02
AKRON DIVISION.	161,441.01	184,233.97	Def. 22,792.96
Totals.	\$18,927,574.35	\$13,866,577.66	\$5,060,995.69

The following table shows the gross earnings, the expenses and the net earnings of the Main Line and Branches and each Division of the System for the twelve months ended September 30, 1892, (the figures for September being partly estimated,) with comparison for the twelve months ended September 30, 1891:

GROSS EARNINGS, EXPENSES AND NET EARNINGS OF EACH DIVISION FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 1892 AND 1891.

	Gross Earnings.		Expenses.		Net Earnings.	
	1891.	1892.	1891.	1892.	1891.	1892.
MAIN STEM DIVISION, including the Main Stem and Branches, also the Winchester and Potomac, the Winchester and Strasburg Railroad, the Harrisonburg Branch, the South Branch Railroad, the Fairmont, Morgantown and Pittsburgh Railroad, the Washington County, the State Line and Confluence and Oakland Railroads.	\$12,031,811.94	\$12,347,996.44	\$7,117,909.30	\$8,024,946.91	\$4,613,072.57	\$4,318,043.33
PARKERSBURG BRANCH.	793,294.04	826,212.60	632,616.89	737,730.07	160,634.05	139,482.53
WASHINGTON BRANCH.	726,418.83	768,489.04	535,653.05	563,063.70	190,766.78	205,425.34
PHILADELPHIA LINE, embracing the Baltimore and Philadelphia Railroad and Philadelphia Branch.	1,899,637.96	2,056,414.04	1,343,180.67	1,408,177.80	\$56,457.39	648,236.24
PITTSBURG DIVISION, embracing the Pittsburgh and Connellsburg Road, the Hickman Run Branch, the Somerset and Cambria Railroad, the Mount Pleasant and Broad Ford and the Fayette County Branches, the Berlin Railroad, and the Ohio and Baltimore Short Line, Eastern Division.	2,880,391.05	3,090,404.04	1,898,595.30	2,114,882.69	981,795.75	975,521.35
WHEELING, PITTSBURG AND BALTIMORE DIVISION.	651,012.10	669,255.56	598,800.39	596,469.30	54,211.71	72,986.26
MIDLAND DIVISION.	344,428.56	347,646.00	275,258.54	314,877.59	69,565.23	27,769.21
CENTRAL OHIO DIVISION.	1,365,503.97	1,419,931.05	1,178,212.64	1,133,934.17	187,542.33	285,993.91
LAKE ERIE DIVISION.	1,103,181.50	1,032,071.16	851,458.97	833,079.67	255,359.53	199,127.69
STRAITSVILLE DIVISION.	145,026.37	149,978.73	142,909.90	160,605.93	3,116.47	Def. 10,627.20
CHICAGO DIVISION.	3,556,814.61	3,007,582.65	2,173,093.94	2,443,437.25	83,720.67	624,145.40
AKRON DIVISION, from August 1, 1891.	27,376.38	23,056.62	30,691.20	264,798.06	Def. 3,314.82	Def. 31,742.44
Totals.						

MANUFACTURERS' RECORD.

EQUIPMENT TRUST FOR \$2,000,000.

Of the Equipment Trust Loan, Series B, of \$2,000,000, made with the Finance Company of Pennsylvania, there has been expended \$1,692,830.97 for 42 locomotives, 10 passenger, 3 combination, 4 baggage and 2,395 freight cars, leaving still unexpended on June 30, 1892, \$307,169.03, to be expended for equipment to be constructed.

SINKING FUNDS.

The company has maintained through the year its cash appropriations to the Sinking Funds of its Sterling Loan due in 1927, and the P. and C. Consolidated Mortgage Loan due in 1926. These two Sinking Funds now amount to \$1,202,724.

The investment for the appropriations and increments of the Main Line Sinking Funds, in pursuance of the agreement to that effect, have been made in the Consolidated Mortgage five per cent. one hundred-year Bonds of this Company, and now amount to \$4,270,000 in these Bonds, in addition to \$5,172,272 of other first-class interest bearing Bonds.

PAYMENT TO THE CITY OF BALTIMORE ON ACCOUNT OF THE PURCHASE OF ITS INTEREST IN THE PITTSBURGH AND CONNELLSVILLE RAILROAD.

The Company has made its sixteenth annual payment of \$40,000 to the City of Baltimore on account of the purchase of the city's interest in the Pittsburgh & Connellsburg Railroad, leaving still due \$360,000 of the original sum of \$1,000,000.

PAYMENT OF EQUIPMENT TRUST BONDS.

The Equipment Trust obligations of the Company have been issued as follows:

Car Trust of 1887,	\$2,500,000
Equipment Trust, Series A, 1889	1,000,000
Equipment Trust, Series B, 1890	2,000,000
\$5,500,000	

Ten per cent. of the principal sum is payable annually, and there has been accordingly paid as follows:

The Car Trust Loan of 1887 for \$2,500,000, five annual payments, aggregating	\$1,250,000
The Equipment Trust Loan of 1889, Series A, for \$1,000,000, three annual payments	300,000
The Equipment Trust Loan of 1890, Series B, for \$2,000,000, one annual payment	200,000
\$1,750,000	

Total payments..... \$1,750,000

Leaving on June 30, 1892, \$307,169.03 of Series B yet to be expended in equipment.

SPECIAL LOANS AND BILLS PAYABLE.

There is a decrease of \$77,440.41 under this head, as compared with September 30, 1891, while "Advances for Construction and Permanent Improvement on Lines Leased and Operated" and "Due from other Railroads in General Account" (Table E) show an increase of \$1,517,413.35.

RELIEF DEPARTMENT.

The report of the Relief Department for the nine months ended June 30, 1892 will be printed for distribution among the members. The following shows the condition of that Department:

The active membership at the close of the fiscal year was 22,930, being an increase of 617 as compared with the previous year.

The receipts and income during the nine months ended June 30, 1892, have been	\$ 315,100.28
And the disbursements have been	321,257.53
From the commencement of the Relief Association to the close of the fiscal year the disbursements have been	3,468,385.78
The amount due depositors by the Savings Feature was	577,429.27
At the close of the fiscal year of 1891	692,542.05
The deposits during the fiscal year have been	219,086.04
The withdrawals of the depositors during the fiscal year have been	103,665.26
The amount due by borrowers under the provision of the Savings Feature was	408,783.65
At the close of the fiscal year, 1891	495,178.94

An extra dividend at the rate of 1 per cent. per annum was declared on all deposits drawing interest on June 30, thus making the interest for twelve months equivalent to 5 per cent.

The funds of the Savings Feature are loaned only to employees of the Company, to enable them to purchase or improve homesteads or to release liens thereon.

At the close of the fiscal year there were 201 names on the Pension roll, the disbursements on this account for the year having been \$22,381.11, and for the whole period \$160,159.81.

PHILADELPHIA DIVISION.

The business on the Philadelphia Division continues to steadily improve.

The following is the result for the nine months ended June 30, 1892:

Gross Earnings.....	\$1,441,004.82
Expenses.....	1,025,047.57

Net Earnings.....	\$415,957.25
The following is the comparison for the twelve months ended September 30, 1891, (September partly estimated,) with September 30, 1891:	

1891.	1892.	Increase.
Gross Earnings..... \$1,890,637.96	\$2,056,414.04	\$156,776.08 or 8.25 per cent.
Expenses..... 1,343,185.07	1,408,177.80	64,937.13 or 4.81 per cent.
Net Earnings..... \$556,457.99	\$648,236.24	\$91,778.95 or 16.49 per cent.

STATEN ISLAND RAPID TRANSIT RAILROAD.

The following shows the results of the operations of this line for the nine months ended June 30, 1892:

Gross Earnings.....	\$642,386.47
Operating Expenses.....	403,069.22

The following is the comparison for the 12 months ended September 30, 1892, with September 30, 1891:

	1891.	1892.	Inc.	Dec.
Gross Earnings.....	\$1,025,597.69	\$1,445,612.07	\$20,014.38	
Operating Expenses.....	651,599.61	666,176.24	24,576.63	
Net Earnings.....	\$ 393,998.08	\$ 389,435.83	.....	\$4,562.25
Interest, Rentals and Taxes.....	355,974.55	347,342.00	.....	7,741.95
Surplus.....	\$ 38,923.53	\$ 42,083.23	\$ 3,159.70	.....

During the past year, one of the largest Steam Coal Mining Companies in the country, heretofore shipping from Jersey City, has constructed a pier and built its terminals in the vicinity of St. George, Staten Island.

Early in 1893, there will be completed at St. George, a commodious passenger station and freight yard, and an extension of the Line to the South Shore.

These much needed improvements will add largely to the business of this Company.

GRAFTON AND BELINGTON RAILROAD.

The Grafton and Greenbrier Railroad Company has been reorganized under the above title.

The change of the old Line from a narrow gauge to a standard gauge, referred to in the last Annual Report, was completed May 1 last.

The road thus improved has become an active feeder to the Main Line.

WEST VIRGINIA AND PITTSBURGH RAILROAD.

By 1st of December next the entire Line, with the exception of a short section from Camden-on-Gauley to Cherry River, will be completed and in operation.

Even in its incomplete condition the Road has been doing a very active business in passenger and freight traffic, and up to the termination of its fiscal year (June 30, 1892) has paid its working expenses and fixed charges.

The development of the extensive and immensely valuable lumber district of West Virginia traversed by this Line, has, even in the incomplete condition of the Road, exceeded the expectations of its promoters.

The one thousand lumber cars constructed specially for this service have proved insufficient for the demand.

BALTIMORE BELT RAILROAD.

The completion of this Line has been delayed by the thorough system of construction required by the Management and the more extended plans adopted for the Passenger Stations.

It will probably not be in condition to operate until the early summer.

THE PITTSBURGH AND WESTERN RAILWAY.

The Company has acquired the controlling interest in this Line upon the terms referred to in last Annual Report.

The extended improvements needed upon the road-bed, &c., are being vigorously pushed. When these are completed, the Company will have another, and a very superior through line to Chicago, under its ownership or direct control, via the Main Line to Cumberland, the Pittsburgh and Connellsburg System to Pittsburgh, the Pittsburgh and Western Railway to Akron, the Akron and Chicago Junction Railroad to Chicago Junction, the Baltimore and Ohio and Chicago Division to Chicago.

LANCASTER AND CECIL RAILROAD.

By the close of the present calendar year, the Company will have completed the construction of a line leaving the Philadelphia Division at Childs' Station, and extending north toward Oxford, Pennsylvania, a distance of 4 1/4 miles, reaching the extensive Providence paper mills, as well as the Marley paper mills, the Harlan paper mills, the Cecil paper mills, and the Walnut Valley flouring mills. It is expected the completion of this line will largely increase the traffic derived by the Company from these industries.

STATE LINE RAILROAD.

By June 1, 1893, it is expected the State Line Railroad will be completed from Redstone Junction to the State Line, near Point Marion, Pennsylvania, and that the Fairmont, Morgantown and Pittsburgh Railroad will be completed from Morgantown to a connection with the State Line Railroad at the State Line, near Point Marion, a combined distance of 28.53 miles.

This will connect the Company's Fairmont, Morgantown and Pittsburgh Railroad with the Uniontown Branch of the Pittsburgh and Connellsburg Division, thus giving the Company a direct line to Pittsburgh and the West from those portions of West Virginia abounding in lumber, coal and other traffic commodities.

METROPOLITAN SOUTHERN RAILROAD.

This line has been constructed from Metropolitan Southern Junction, on the Metropolitan Branch near Washington, to Chevy Chase, a distance of two miles. The line will develop some important suburban settlements in the vicinity of Washington, D. C.

WORLD'S COLUMBIAN EXPOSITION.

Under an arrangement with the Management of the World's Columbian Exposition, this Company recently completed an extension of its line into the grounds of the Exposition, leaving the Main Line a short distance west of its South Chicago Station. It has been operated since April 26 last for the delivery of building materials, etc., for the Exposition.

It is proposed to open this "Exposition Line" to any of the railways entering Chicago, which can connect therewith upon a wheelage charge.

This Branch has proved useful to the Exposition, and, when the latter is opened, it is believed it will prove advantageous to the Company.

TERMINALS.

The completion of the negotiations for terminals at Chicago, referred to in last Annual Report, enabled the Company to occupy the Grand Central Passenger Station since December 1, 1891, and separate freight station and yards adjoining the same.

The Baltimore and Ohio Connection Railroad, connecting the Rock Island Line with the Chicago Central Railway—with both of which roads the Baltimore and Ohio Company has permanent leases, was completed and opened on the eighth of October.

This will furnish the Company with a superior route from its main line, at South Chicago into one of the largest and best located passenger and freight stations in Chicago, which cannot fail, in the immediate future, to materially increase the business of its system west of the river.

At Clarksburg and Fairmont large additions are being made to the terminals to accommodate the rapidly increasing business from the West Virginia and Pittsburgh and Monongahela River Railroad systems.

For other new terminals, reference is made to the last Annual Report.

The greater part of the work upon the "large extensions to sidings, and the third tracks on the Philadelphia, Main Stem, Pittsburgh and Trans. Ohio Divisions," referred to in the last Annual Report, will be completed within the present calendar year.

The Management has continued in the past fiscal year the large expenditures needed to improve the condition of the property in every department, with a view of attaining that higher standard of efficiency which each year of rapid railroad development demands.

Accordingly, the following large expenditures, which are included in Operating Expenses, have been made during the nine months ended June 30:

For Maintenance of Equipment

\$2,727,291.73

For Maintenance of Way and Structures

2,269,813.35

STOCK DIVIDEND AND INCREASE OF COMMON CAPITAL STOCK.

The following resolutions of the Board of Directors, adopted November 11, 1891, will fully inform the Stockholders upon these two subjects:

Whereas, for the fiscal year terminating September 30, 1889, 1890 and 1891, the Net Earnings and Income of the Company have amounted to the sum of \$4,545,272.34—as shown by its reports—after the payment of Dividends on the First and Second Series of Preferred Stock to the amount of \$900,000.00, the adjustment of Sinking Fund Accounts, and after charging to Operating Expenses during those years over \$1,000,000.00, expended in betterments and improvements of the physical condition of the property and in bringing it up to a higher working standard;

And whereas, after charging to "Profit and Loss" of those years the sum of \$1,617,051.99—a deduction which has been deemed proper to make by reason mainly of depreciation of the value of equipment which properly should have been made during the year 1888—there still remains of such Net Earnings and Income the sum of \$3,311,455.25, which sum, in addition to the amounts derived from other sources, has been used in reduction of the Bonded and Car Trust Indebtedness of the Company to the amount of \$1,325,102.64, and also for the permanent improvement of the Railway, and for new Construction, all of which constitute valuable additions to the property and to the Capital of the Company.

Therefore resolved, that a dividend of twenty (20) per cent. be declared upon the Common Stock of this Company, for the period ending September 30, 1891, payable on and after the 31st day of December, 1891, on the Common Stock of the Company, at the Office of the Treasurer, to the Stockholders of record at 3 P. M., on the 30th day of November, 1891, and for this purpose the Transfer Books of the Company will remain open from 9 A. M. on the 17th day of November until 3 P. M. on the 30th day of November, and will, from that period, remain closed until 10 A. M. on December 10, 1891.

Whereas, during the preceding three years, the Company has deemed it wise to expend its entire Net Earnings and Income in much needed additional construction and betterments of its railroad system.

And whereas, these expenditures must continue in the future, in order to establish and maintain all the lines of the Company at the high standard of efficiency now necessary for remunerative results; in addition to which large expenditures will be required for the improvements and extensions necessary to avail of the large business, freight and passenger, that will undoubtedly grow out of the World's Fair at Chicago;

And whereas, it is not deemed desirable to continue longer the appropriation of the Net Earnings and Income of the Company to such expenditures, but to provide for the same out of sales of its Common Stock, in such amounts and at such periods as may be deemed expedient;

Therefore, be it resolved, that an issue of the Common Stock of the Company, of the par value of \$5,000,000 be and the same is hereby authorized, and the President and Finance Committee are hereby empowered to sell this issue, in whole or in part, at such times as may be by them deemed expedient.

The above resolutions were carried out by the issue of the Dividend Stock, and by the sale, to a syndicate, of the entire authorized issue of \$5,000,000 Common Capital Stock.

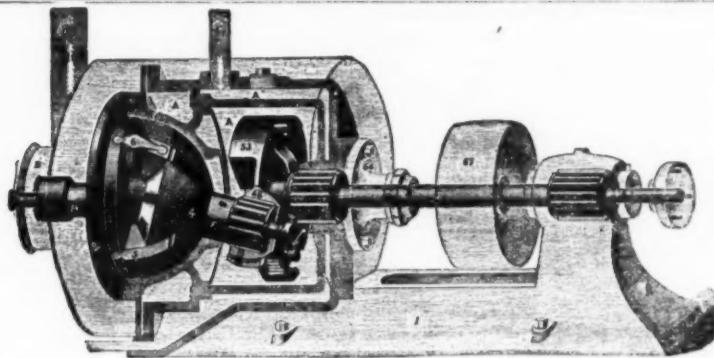
The proceeds of the latter are being, and will continue to be, applied to the extension of the Company's lines, and in the improvement of its properties.

Attention is called to the following tables attached to this Report, which give in detail information connected with the several subjects:

A. Earnings and Expenses of all lines East and West of the Ohio River.

B. Statement of Net Earnings and Income and Fixed Charges on all lines of the system, together with the profit or loss upon each, for the nine months ended June 30, 1892.

C. Statement of Net Earnings and Income and Fixed Charges on all lines of the system, together with the profit or loss upon each, for the twelve months ended September



The above illustration shows the working parts of the only steam engine worthy of being called **high speed**. It is known as the

American High Speed Engine.

It has no competitors.

Runs easily and smoothly

1000 REVOLUTIONS and more, in small sizes, and proportionally fast in larger sizes.

Unsurpassed for Economy and close automatic government.

DYNAMOS,

CIRCULAR SAWS,

FANS, BLOWERS,

THRESHING MACHINES,

etc., run by **direct coupling** without belts.

It's the acme of simplicity. There's great saving in foundations, little or none being required, also in oil consumed and attention required.

For high speed machinery it saves many shafts, counter-shafts, hangers,

pulleys, belts, and great loss of power incidental to their use. Speed readily reduced for slow running machinery.

This Engine is

NOT A "ROTARY,"

as its piston does not revolve; runs standing on either end, or placed horizontally, equally well; is *wholly* self-contained. Takes up but little room.

MARINE TYPE

is very light, and has simple, effective reversing mechanism. Especially well adapted for high speed Launches and Yachts. Its position in bottom of boat is most favorable for ballast.

Engines of 2 to 200 Horse Power can be furnished on short notice.

If you want to know more, send address and 10 cents in stamps for Large Illustrated Catalogue, to

AMERICAN ENGINE CO.,

BOUND BROOK, N. J.

No. 32 Raritan Avenue.

SOUTHERN BANKS.

Be'ow is published a list of Banks and Bankers in the Sou'ern States, whom the MANUFACTURERS' RECORD commends to its readers:

GEORGIA.

AUGUSTA—**Georgia Railroad & Banking Co.**, Chas. H. Phinizy, President. Capital \$4,200,000.

MACON—**American National Bank**. Wm. H. Burden, President. Capital \$250,000.

MACON—**Exchange Bank**, H. J. Lamar, President; J. W. Caban's, Cashier. Capital and surplus \$550,000.

MACON—**First National Bank**, J. C. Plant, President. Capital and surplus \$200,000.

SOUTH CAROLINA.

COLUMBIA—**Carolina National Bank**, W. A. Clark, Pres'dent. Capital \$100,000.

VIRGINIA.

BUENA VISTA—**Buena Vista Loan & Trust Co.**, C. B. Guyer, Pres. Capital \$100,000.

C. O. Godfrey. A. W. Train.

GODFREY & TRAIN,

Investment Securities, Stocks, Bonds, Etc.

\$500,000 Good City and County Bonds Wanted.

40 Wall Street, NEW YORK.

Southern Investments.

EDWARD MORTON & CO.

Investment Securities,

53 Broadway,

NEW YORK.

Railroad Finance a Specialty.

Stocks, Bonds and Loans.

Construction Material and Equipment.

Street Railroads.

Municipal Bonds and Industrials.

HELP WANTED.

WANTED—A FOREMAN for small Machine Shop in the South, manufacturing heavy Saw Mill Machinery; must be thoroughly up in modern shop practice, have good executive ability, understand methods of producing work cheaply. Give reference and state age, experience and salary expected. Address "PROGRESS" care MANUFACTURERS' RECORD. D16

WANTED—A MILLER to take charge of a 25 bbl. Roller Mill. Will pay a salary or give a good man one-third of the income of the Mill. Man without family preferred, and must have proper references. Address R. E. NAB, Calloways, Va. D16

WANTED—First-Class COOPERS on Cask and Tub work. Good wages; steady employment. Address THE HAUSER, BRENNER & FATH CO., Cincinnati Ohio. D16

WANTED—Practical PAPER MANUFACTURER to Superintend a large Mill in the West. State experience and salary. Correspondence confidential. Address "PAPER MILL" care MANUFACTURERS' RECORD. N25

WANTED—SECOND ENGINEER to look after Corliss Engine and Westinghouse Dynamos at night. Salary \$10 per week. Can get board at \$3.00 per week. Address with reference, "SECOND ENGINEER," care MANUFACTURERS' RECORD. N25

WE want to employ Two First Class Shop Workmen experienced on Doors and can do them through the machines and do the bench work complete. Also one good Sash Maker. Apply or address ADAMS & WOODSON, Lynchburg, Va. N25

WANTED—TO LOCATE AND SECURE EMPLOYMENT FOR ALL HONEST AND INDUSTRIOUS PEOPLE WHO WANT TO COME SOUTH. WRITE FOR PARTICULARS. MCCLURE & MAXWELL, REAL ESTATE & MINERAL LANDS, KNOXVILLE, TENNESSEE.

WANTED—A Young Man (preferred) with small capital and some knowledge in the Mill Supply Business, to take an active part. Address "ACTIVE," care of MANUFACTURERS' RECORD.

SITUATIONS WANTED.

A Practical MOLDER desires the Foremanship of a F 1st Class Machinery Foundry, or will run one by the ton. None but first-class need answer. Address "H. H." care MANUFACTURERS' RECORD. D16

WANTED—By a Practical Locomotive ENGINEER position on some good private railroad or lumber company; railroad preferred; Georgia or North Carol. Address "S. M. P." Post Box 265, Op. like, Ala. D16

WANTED—A Young Man desires employment. Can operate on Typewriter and is a tolerable good Stenographer. Salary small consideration. Address RAN. C. BERKELEY, Staunton, Va. D16

WANTED—By a Young Man of experience a position as Mold Machine Worker. Satisfactory reference given. Address W. O. POOL, Newport News Va. D16

WANTED—Situation as STENOGRAPHER and ASSISTANT BOOKKEEPER; experienced good education, good penman. Address GEO. P. BROWN, 49 Broadway, Cincinnati, Ohio. D16

WANTED—A position by a first-class Planing Mill Man. Can keep machinery in first-class order. Good man on moulding machines. Address EDW. DERBY, De Land, Fla. D9

WANTED—Position as Inspector of Railroad Ties or Timber. Best references as to capability and habits. Address G. W. HILL, Pine Hall, S. C. D9

CIVIL ENGINEER wants situation. Eight years' experience as superintendent and engineer for railways, mines and land companies. A. R. LONGLEY, 19 46th st., Chicago. D9

WANTED—By young man of temperate habits and energy, work. Have good education. Place as clerk or office work preferred. Salary no object. JAMES W. MARSHALL, Fredericksburg, Va. D2

WANTED—A Position as Manager or Chief Engineer of some Refrigerating or Ice Making Plant, by a man well versed in the art of both, having had a number of years' experience in both lines, is a first-class machinist and a licensed engineer. Best of references given. Address "B 12" care MANUFACTURERS' RECORD. D2

WANTED—Position as ELECTRICIAN or Foreman of Electric Light or Power Plant. Six years' experience with leading systems of Arc, Incandescent and Power Generators. Best of references. Address "C. R. J., Jr." care MANUFACTURERS' RECORD. D2

WANTED—A Practical and reliable SAW MAKER (Circular Saws a specialty) wants a position. Address JOHN C. STAHL, 71 Woodburn street, Cleveland, Ohio. D2

A FIRST-CLASS ENGINEER, MACHINIST and DRAFTSMAN would like a position as Chief Engineer or Master Mechanic. Familiar with Cotton Mill Work. Address "ENGINEER," care MANUFACTURERS' RECORD. D2

WANTED—A position as DRAFTSMAN or in office of some manufacturing concern, or would be willing to work part time at both with a new company. Have had technical education and good experience as a Mechanist and Draftsman. Age, 24 years. Address "BOX 40" care MANUFACTURERS' RECORD. N25

WANTED—FOUNDRYMAN TO GIVE ALUMINUM ALLOY COMPOSITE A TRIAL. Two per cent in ordinary up to 1000 pounds f.o.b. Price \$5.00 per 100 pounds f.o.b.

Book of information, with Government report and other indisputable testimonials for foundrymen free.

The HARTSFIELD FURNACE & REFINING CO. Newport, Kentucky.

WANTED.

FOREMAN in Woodworking Establishment who thoroughly understands his business, and can take a third or half interest. Apply to

IRWIN TUCKER,
NEWPORT NEWS, VA.

SUPERINTENDENT WANTED.—A man of experience in Making and Burning Brick, who has \$3,000 to \$5,000 capital to take an interest and manage old established yard and trade of steam brick plant recently refitted up. Must thoroughly understand the business. Sixty-horse-power boiler and engine, new Quaker machine, racks and pallets; capacity 30,000 per day; situated in a Virginia City, 25,000 inhabitants; trade already established. Address BRICK MAKER, care MANUFACTURERS' RECORD.

SOLICITORS OF PATENTS.

For the convenience of a large number of readers of the MANUFACTURERS' RECORD who require the services of reliable Patent Attorneys, the appended directory is given. Those of our readers who may correspond with the Attorneys here mentioned, will confer a favor upon both advertiser and publisher by mentioning the MANUFACTURERS' RECORD.

PATENTS FOR INVENTORS. 40 PAGE BOOK FREE. Address W. T. FITZ GERALD, Attorney-at-Law, Washington, D. C.

GLASCOCK & CO., Washington, D. C.

GEORGE E. LEMON, Washington, D. C.

PATRICK O'FARRELL, Solicitor of Patents. Inventor's Guide sent free. Wash., D. C.

S. BRASHFARS—10 years Examiner in U. S. Patent Office, 615 7th St., N. W. Advice free.

GEO. P. WHITTLESEY, Patent Lawyer and Solicitor of Patents, Washington, D. C.

DU BOIS & DU BOIS, Wash., D. C. Terms unsurpassed. Send for illustrated hand book.

K NIGHT BROS.—Patents for Electrical and Mechanical Inventions. 631-633 F Street, Washington, D. C. Established 1843.

PATENTS OBTAINED—OUR CHARGE \$25. Send for our "SHORT TALK ON PATENTS" WALTER DONALDSON & CO., Washington, D. C.

PATENTS

CHAMPION & CHAMPION,

PATENTS AND PATENT CAUSES.

Patents, Designs and Trade-Marks procured. Searches made. Opinions rendered. Interferences conducted, etc. Specialties—INTERFENCES AND METALLURGICAL INVENTIONS. Correspondence invited.

Pacific Building, Washington, D. C.

All Valuable Minerals, Oils, Coals, Ores, Gems, &c., and where to look for them,

Described in SMITH'S

Pocket Geologist and Mineralogist,

Cloth Bound. 204 Pages.

Sent by mail on receipt of one dollar.

SMITH'S

FREDERICK H. SMITH, 227 E. German St.

Name this paper. BALTIMORE, MD.

DESKS, CHAIRS, Office Furniture. Send for catalogue.

DERBY & KILMER DESK CO.

BALTIMORE, MD.

Opp. Lowell Depot,

93 Causeway St., Boston,

10 Beckman St., N. Y.

J. M. SAUER & CO.

MANUFACTURERS & DEALERS

SCHOOL FURNITURE, SUPPLIES, CHURCH SEATING, OPERA CHAIRS, OFFICE DESKS.

ROANOKE, VIRGINIA.

The BOOMER & BOSCHERT KNUCKLE JOINT PRESS

FOR BALING

Cloth, Paper, Yarn, &c. Or for any other purpose requiring great pressure.

BOOMER & BOSCHERT PRESS CO.

329 W. Water St. Syracuse, N. Y.

XUM

PROPOSALS.

UNITED STATES ENGINEER OFFICE.
WILMINGTON, N. C., November 12, 1892.
SEALED PROPOSALS for building an earth dike at South Island Winyaw Bay, S. C., will be received at this office until 11 A. M., November 30, 1892, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application at this office.—W. S. STANTON, Major Corps of Engineers, U. S. A.

TREASURY DEPARTMENT, office of the Supervising Architect, Washington, D. C., November 19th, 1892. SEALED PROPOSALS will be received at this office until 2 o'clock P. M., on the 20th day of December, 1892, and opened immediately thereafter, for all the labor and material required for the excavation, foundations, stone and brick work, floor and roof of construction, roof covering, etc., for the U. S. Custom House and Postoffice Building at St. Albans, Vermont, in accordance with the drawings and specification, copies of which may be had on application at this office or the office of the Superintendent at St. Albans, Vermont. Each bid must be accompanied by a certified check for a sum of less than two per cent. of the amount of the proposal. The right is reserved to reject any or all bids and to waive any defect or irregularity in any bid, if it be deemed in the interest of the Government to do so. All proposals received after the time stated will be returned to the bidders. Proposals must be enclosed in envelopes, sealed and marked, "Proposal for the excavation, foundations, stone and brick work, floor and roof of construction, roof covering, etc., for the U. S. Custom House and Postoffice Building at St. Albans, Vermont, and addressed to W. J. EDBROOK, Supervising Architect.

50 PER CENT. PROFIT.

Parties with Capital may find an unequalled opportunity for investment in extending an original and most paying patent, by addressing

T. H. SAMPSON,

NEW ORLEANS, LA.

TWO LARGE PIECES OF LAND in the business part of Rome, Ga., For Sale under their value. Address R. T. FOUCHE, Rome, Ga.

FOR SALE.

FORTY MILLION feet PINE TIMBER, on Norfolk and Carolina Railroad. R. H. GATLIN, Tarboro, N. C.

FOR SALE.

U. S. Patent No. 454953, Broadly Covering Combined Batting Press and Weaving Scale, for Cotton, Hay, &c.

A simple and practical apparatus for securing bales of uniform weight. Address

J. S. WATTERS,

Appeal Building, MEMPHIS, TENN.

3,333, 8,461, 16,000 and 35 656 Acres Fine Timber and Coal Lands For Sale in Eastern Kentucky.

Timber on good streams; easy to get out; popular, oak, chestnut, pine, &c. Coal both cannel and bituminous, and of very superior quality, 3/4 to 4 feet thick. Also valuable coal plant now in operation for sale, paying ten to fifteen per cent. on price asked for it. Prices on these properties very reasonable, and titles absolutely perfect in every respect.

I. T. WEST,
FRANKFORT KY.

ADMINISTRATOR'S SALE

VALUABLE PROPERTY, FOR MANUFACTURING PURPOSES, FRONTING ON THE MIDDLE BRANCH OF THE PATAPSCO RIVER AND ADJOINING HORNER'S FACTORY.

By virtue of an order of the Orphans' Court of Baltimore City, the undersigned Administrator, with the will annexed of Otto W. Elchberger, deceased, will sell at the REAL ESTATE EXCHANGE, ROOM 22, E. Fayette St., Baltimore, Md., on THURSDAY, Dec 1, 1892, THE FOLLOWING DESCRIBED LOT OF GROUND: Beginning for the same at the post standing on the easternmost side of Gould street at the north corner of a lot heretofore leased by Alexander Gould, Sr., to James Coburn, and running thence north 40 1/2 degrees east, bounding on said street 455 feet to the outline of Gould's land; thence south 41 1/2 degrees east, bounding on said said outline 370 feet to the waters of the Middle Branch of the Patapsco river (at common tide); thence running and bounding on the waters of said river the two following courses and distances, south 6 1/2 degrees west 96 feet, south 56 1/2 degrees, west 265 feet to the east corner of James Coburn's lot aforesaid and thence north 43 1/2 degrees east, bounding on said Coburn's lot 260 feet to the beginning, containing three acres and twenty-two square perches of land, more or less, with the use and benefit of Gould street and also of a street 25 feet wide, commencing 5 feet southwesterly from the dividing line between the lands once owned by John S. Gittings and the land above described, and on the first line thereof, and running in a northwesterly direction and parallel with the dividing line aforesaid until it intersects Wells street, (formerly Ohio street,) with the right to lay tracks on said 25 foot street to connect with the Baltimore & Ohio Railroad. This property is subject to a ground rent of \$45, payable in moieties on the first of May and November in every year.

The near proximity of the Baltimore & Ohio Railroad track and the right to connect with the same, and the large water front present an unusual opportunity for capitalists and others desiring an investment or for those who wish a fine location for a manufacturing plant.

Terms of sale: One-third cash and the balance in six and twelve months or all cash at purchaser's option; deferred payments to bear interest from the day of sale, to which time taxes and ground rent will be adjusted. A deposit of five hundred dollars will then be required.

RICHARD R. BATTEE,
Administrator,
MATTHEWS & KIRKLAND,
Auctioneers.

RICH GOLD MINES.

I have in my hands two adjoining gold properties of about 1,250 acres each, aggregating nearly 2,500 acres, easily accessible, in the United States of Colombia, South America, with ore of the most extraordinary richness, some of which carries as much as three thousand dollars (\$3,000) in gold to the ton, and all being of high grade.

These mines are of ancient discovery and were worked with great profit for a long period, being only abandoned on account of political troubles before and after the war of liberation.

These troubles have been happily settled for over a quarter of a century, and the Colombian Republic is based upon the theory of and similar to our own government, with civil and religious liberty and equal rights to all, and is as stable as any government in the world.

These mines are so richly endowed with auriferous material, from the easily worked sand, gravel, and dirt, (carrying virgin dust and nuggets), to the fissure veins of free milling quartz, that when properly equipped a profit of ten thousand dollars (\$10,000) a day or over three million dollars (\$3,000,000) annually is a very low and conservative estimate.

There is an abundance of timber and unfailing water power, with a genial and healthy climate.

It is proposed to organize this property on a basis of five million dollars (\$5,000,000), upon which there can be dividends earned of 60 per cent. or more, and the parties furnishing the original capital in small or large sums for this organization, which will be about twenty five thousand dollars (\$25,000), will be let in on a basis of two and a half cents (2 1/2c.) on the dollar, with the privilege of purchasing pro rata at five cents (5c.) on the dollar a sufficient amount to give them a controlling interest if they so desire.

There is also the right of prior possession to double the amount of contiguous land which will swell the property to about seven thousand, five hundred (7,500) acres.

The poverty of the owners of this property, being land poor, is the reason of this usual offer, and they will retain as much of the property as they possibly can, parting with only what is necessary in order to work it.

Situated in the jurisdiction of Simiti, District of Guamaco, Province of Mompos, State of Bolivar.

An experienced miner, who has been over and thoroughly examined the property, says, "there is more gold there than in the entire State of California," while another says "the evidence of mineral wealth was so great that I almost doubted my own sanity, and were I to tell California and Colorado miners even one-tenth of what I actually saw, I would be branded as a foolish liar or raving maniac."

L. BRECKINRIDGE CABELL.

Room 17, 53 Broadway, New York.

COLUMBUS, MISS.

\$3,000 WILL BUY ONE OF THE BEST LOCATED SAW MILLS IN THE COUNTRY, on Yazoo River, and plenty of good Timber at Mill; two Traction Engines, one Portable Engine and Boiler. Parties who erected Mill got in debt, and was closed out just before completion.

SAML. KAYE, Columbus, Miss.

FOR SALE.

One 30-inch Whiting Lapper, two Beaters. One 30-inch Walker & Hacking Lapper, two Beaters.

One W. C. Boone Rope Machine and Former, complete with Collier.

Ten Spinning Frames, 120 Spindles each, 1 1/4-inch ring, 2 1/2-inch space, 5-inch traverse.

One Drum Spooler, 48 Spindles.

One Upright Spooler, Howard & Bullough, 95 Spindles.

Four 54-inch Reels, 45 Spindles each.

The above machinery is in good condition and will be sold very low. Write to

R. K. REAVES, Athens, Ga.

COTTON FACTORY
FOR SALE.

About Twelve Acres of Land lying on both sides of the Cape Fear & Yadkin Valley Railroad, just outside and adjoining the city limits of GREENSBORO, NORTH CAROLINA. There is on the land a new one-story brick, metal-roofed building, 55 by 135 feet, built for a Cotton Factory, but which can be used for almost any other kind of machinery. Also a neat Cottage. For terms enquire of

W. E. BEVILL, President,
Greensboro, N. C.

FOR SALE—Second Hand TIGHT WORK Stave, Heading and Barrel Machinery.

CRESCEENT MFG. CO., 136 River St., Cleveland, O.

PARTIES HAVING SCRAP STEEL TO SELL for Open Hearth Melting Purposes, please write to us. J. H. RICHARDSON & CO., 708 Pennsylvania avenue, Pittsburgh, Pa.

Corliss Automatic Engines

ALSO
Electric Light, High-Speed and
Slide Valve Engines.

In first-class condition for immediate delivery at very low prices.

Special Corliss Rolling Mill Engines for Plate Mills, etc., 30x72 in., with 30-ton wheel 16-in. wrought shaft; also 24x48 in., with 18-ton

wrought, 12-in. wrought shaft.

Corliss Engines, one each, 30x60, 32x48, 26x48,

23x36, 20x48, 18x48, 16x42, 14x48, 12x36. Buck-

eye Engines, one each, 11x20, 11x21, 14x24,

15x18. One pair of Woodruff & Beach Engines, automatic cut-off, 20x48. Slide-Valve Engines,

10x16, 11x24, 8x8, 13x16, 12x24, 7x14 and 14x16.

Steel Boilers, assorted sizes, 50, 55, 60, 80 and 100

horse-power—all insured for 80 pounds. Fan

Blowers, 8 and 9 ft.; Ingersoll Rock Drills; Steam

Pumps—Worthington, Blake, Cameron and Niagara;

Iron Lathes, 4 inches by 5 1/2 feet; 7,500-gallon

tank and smaller sizes; Buckley and Jet Con-

densers; Hoisting Engines, all in good working

condition. Send for catalogue.

GEO. M. CLAPP,

74 Cortlandt Street, NEW YORK.

SOMETHING YOU WANT!

A Saw and Planing Mill!

SITUATED IN FLORIDA,

On the J. T. & K. W. R. R., and St. John's River,

Why We Sell.

Because absorbed in another line of business and not wishing "too many irons in the fire," we have determined to put this valuable property into the market. The outfit consists of

1 Mill Carriage, 2 Saws.

1 Shingle Machine, 2 Saws.

1 B. vel Rip Saw, 4 Saws.

1 Gig Saw, 6 Saws.

1 Table Cut Off S. w., 2 Saws.

1 Endless Band Saw, 2 Saws.

1 1/2 in. Planer and Double Surface Planer.

1 1/2 in. Planer and Double Surface Planer.

1 Hand Planer.

1 Tenoning Machine.

1 Mortising and Boring Machine.

1 Moulder.

1 Lathe and Tools.

1 Drill Press.

1 Lath Machine.

1 Boiler Machine.

1 Automatic Merry Wheels.

1 Foot Mortiser.

1 Foot Rip Saw.

1 Engine.

3 Steel Boilers.

All Belts in good condition. Quantities of

small tools. This is a splendid opportunity for a

profitable investment.

For further particulars address

BORDENS' CLAY COUNTY WOODWORKING CO.

GREEN COVE SPRINGS, FLA.

REMOVAL.

For Sale.

A Rare Chance.

The Real Estate and Buildings of the Ft. Scott Foundry and Machine Works Co., at Ft. Scott, Kansas.

The Most Successful Foundry and Machine Shop Plant

and Best Location in the West.

The company owning and operating this plant continuously and very profitably for the past fifteen years, having brought out some patented specialties, that are sold mostly in the Eastern States and also for export, were compelled, on this account, to locate farther east, and now have under construction at Chicago Heights, Cook County, Illinois, with largely increased capacity, the buildings for their new plant, and will remove all the machinery in their Ft. Scott Works to Chicago about the 1st of Dec. next.

The buildings are practically new, having been erected in 1886, from the most modern and approved plans of foundry and machine buildings, are of ample dimensions for large capacity, well lighted, arranged for traveling cranes throughout; location the best in the city; on about thirteen acres of high ground immediately within the junction, and connected by switches with all the systems of railways entering Ft. Scott.

Ft. Scott has long been celebrated for cheap fuel, cheap living and a cheap and very desirable class of both skilled and common labor.

The business was established here twenty-three years ago, and the works have never been closed.

A large general foundry and machine shop trade comes to this city almost daily from half a dozen States and territories; is in close proximity to the great coal, zinc and lead regions of Missouri, Kansas and Indian Territory.

A Rare Opportunity for a Few Practical Men to Make a Fortune.

The property will be sold at a great bargain, and upon easy terms.

Photos of the works, together with sizes and plans of buildings and full particulars will be forwarded on application. Address

W. R. BURGESS,

SANFORD, FLA.

WEALTH.

Phosphate,

Timber,

Sugar

For Sale in large tracts. Write to

SOLON B. TURMAN,

TAMPA, FLA.

TOWN SITE

ELIGIBLE LOCATION FOR COTTON FACTORY, having advantage of river and railroad transportation, in fine cotton-producing region, in state of Mississippi. Also, near railroad in same State, ELIGIBLE LOCATION FOR AXE-HANDLE FACTORY. Both for sale at moderate prices. Address

PERRY NUGENT,

care Starling & Smith Co.

GREENVILLE, MISS.

Steel Saw Mills

Steel

Head Blocks

Steel

Set Works

Steel

Set Shaft

Steel

"Out & Out"

Being compact run easier, being strong last longer, being simple COST LESS MONEY than any Saw Mill in the Southern States.

Manly Machine Co., FOUNDERS AND MACHINISTS, DALTON, GA.

HARD WOOD

We have a large lot of very fine OAK, POPLAR, SWEET GUM and SHELLBARK HICKORY, which we are prepared to cut to order. Millions and others desirous of handling such wood will find it advantageous to communicate with us.

HUNDLEY BROS. & CO., Contractors, OXFORD, N. C.

FOR SALE.

Strictly First-Class Second-Hand Bollers 50 to 100 Hors² Power,

Fittings to suit purchasers. Engines, Pumps and general machinery in stock at low prices. Every article overhauled in our own shops. No risk in buying such second-hand machinery.

CHESTER BERTOLETTE & CO.

NORRISTOWN, PA.

FOR SALE—A WELL EQUIPPED SASH, DOOR, BLIND AND PLANING MILL, IN FIRST-CLASS ORDER, AND LOCATED IN ONE OF THE FLOURISHING TOWNS OF NORTH CAROLINA, POPULATION ABOUT 4,000. NO OPPOSITION. GOOD SHIPPING FACILITIES. HEALTH OF THE COMMUNITY UNSURPASSED IN THE SOUTH. FOR FURTHER PARTICULARS ADDRESS

"PLANING MILL."

CARE MANUFACTURERS' RECORD.

RARE CHANCE. Machine Shop

(49) forty-nine SECOND-HAND Machine Tools, in Excellent Condition.

FOR SALE

SINGLY.

FITCHBURG AND BLAISDELL } Makes.
COMPRISING
LATHES,
DRILLS,
SHAPERS,
PLANERS.

N. B.—Seven of these Tools were sold last week, order promptly or REPENT.

ADDRESS

PENNSYLVANIA MACHINE CO., LIMITED.
31 N. Seventh Street, Philadelphia, Pa.

(Successors to H. B. Smith Machine Co., Phila.)

SECOND-HAND MACHINERY.

1 Planer, planes 16 ft. long, 62 in. x 48 in.
1 Planer, planes 5 ft. 24x44 in.
1 Planer, planes 6 ft. 32x25 in.
1 Planer, planes 8 ft. 30x30 in.
1 Planer, planes 4 ft. 24x24 in. [not screw cut]
1 Engine Lathe, 9 ft. bed, 28 in. swing screw feed.
1 Engine Lathe, 12 ft. bed, 22 in. swing.
1 Engine Lathe, 12 ft. bed, 22 in. swing.
1 Lathe, Boring and Turning, 15 ft. bed, 84 in. swg.
1 Engine Lathe, 20 ft. bed, 24 in. swing, A1.
1 Engine Lathe, 1 ft. bed, 22 in. swing.
1 14 ft. Vertical Boring Mt.
1 26-in. Stevens' Pulley Lathe.
1 Automatic Rack-Cutting Machine.
1 20 in. stroke Friction Shaper.
1 475 lbs. Merrill Pattern Drop Hammer.
1 11 ft. 24 in. Stover Dimension Planer.
Send for list Second-hand tools.

NEW YORK MACHINERY DEPOT,
Brooklyn Bridge Store, 16, New York.

MACHINERY IN STOCK.

ENGINE LATHES.—66 inches x 22 feet;
88 in. x 31 ft.; 50 in. x 20 ft.; 48 in. x 18 ft.; 43 in. x 18 ft.; 32 in. x 12 ft.; 29 in. x 15 ft.; 24 in. x 28 in. x 20 ft.; 1 each 24 x 10 ft., 12 ft. and 16 ft.; 1 each 17 in. x 6 and 8 ft.; 1 each 16 in. x 6, 8 and 10 ft.; 1 each 14 in. x 6 and 8 ft.; 6 12 in. x 5 ft.; 2 each 11 in. x 4 and 5 ft.; 1 each 10 in. x 4 ft., power or foot-power; 1 16 in. x 6 ft., 15 in. x 6 ft., 14 in. x 5 ft. FOX Monitor Lathes; 1 15 in. x 6 ft. Square Arbor Fox Lathe; 1 each 12 in. x 5 ft., 14 in. x 6 ft., 15 in. x 6 ft., 18 in. x 6 ft. Turret Lathe; 1 each 14 in. x 6 ft., 16 in. x 6 ft., 18 in. x 6 ft. and 8 ft. 21 in. x 8 and 10 ft. Engine Lathe Taper.
1 Iron Planer, 16 in. x 16 in. x 3 ft.
1 Planer, 20x20 in. x 4 ft. and 22x22 in. x 5 ft.
1 " 24x24 in. x 5 1/2 and 6 ft.
1 " 30x30 in. x 6 ft.
1 " 32x32 in. x 10 ft. 42x36 in. x 12 ft.
1 " 36x38 in. x 10 ft.
1 " 44x44 in. x 22 ft. and 50x50 in. x 17 ft.
1 " 30x30 in. x 9 ft., with one head.
1 " 42x42 in. x 12 ft., with two heads.
Friction Shapers, 15 in., 22 in., 32 in.
Crank Shapers, 12, 13, 16, 17, 20, 24, 28 in. adj. st'ke.
1 each Nos. 1, 2, 3, 4 Wire Feed Screw Machines.
1 each Nos. 5 to 8 Screw Machine, Power Feed.
1 each 2, 3, 4 and 6 Spindle Gang Drills.
1 Crank Planers, 12 No. 2 Lincoln Pat. Millers.
1 each Nos. 51, 52 and 53 Ferracate Presses.
1 No. 3 Stiles & Parker Geared Press.
1 No. 2 3/4 in. Fowler Press. 10 Foot and Power Press.
2 No. 1 Bliss Foot Presses. [Presses.
12 Punching and Shearing Machines, assorted.
1 Bolt Cutter, each 1/2 to 1 in. and 3/4 to 2 in.
1 36 in. Gear Cutter.
1 each 48, 60 and 72 in. Radial Drill.
1 New Horizontal Boring Machine with facing attachment. Newark Mach. Tool Co., makers.
1 48 in. Gear Cutter. 1 Power Mortising Machine.
1 50 in. Pulley Lathe, a Profiling Machine.
1 10x12 in. Valley Automatic Engine.
1 56 in. Upright Drill, 3 Cam Cutters.
Send for List of New and Second-Hand Machinery.

PRENTISS TOOL & SUPPLY CO.
99 S. Canal St., Chicago. 115 S. Liberty St., N. Y.

LOCOMOTIVES.

Passenger and Freight

CARS.

Both New and Second-Hand

IMMEDIATE DELIVERY.

Low Prices. Easy Terms.

BARGAINS.—SECOND-HAND TOOLS.

We have the following second-hand Machine Tools, taken mainly in exchange for those of our manufacture. We will sell them low.
17 in. x 8 ft. Putnam Lathe. Good Order.
18 in. x 6 ft. Engine Lathe. Good Order.
18 in. x 10 ft. Engine Lathe. Good Order.
20 in. x 11 ft. Ames Lathe. Good Order.
24 in. x 8 ft. L. W. Pond Lathe. Good Order.
132 in. x 32 in. x 8 ft. and 9 ft. L. W. Pond Planer. G. O.
24 in. x 16 ft. Lathe. Fair Order.
10 in. Traveling Head Shaper. Good Order.
16 in. x 20 in. x 4 ft. Planer. Good Order.
32 in. x 32 in. x 8 ft. L. W. Pond Planer. Good Order.
36 in. x 36 in. x 7 ft. Mattawan Planer. Good Order.
18 in. x 36 in. x 7 ft. Hendey 3-Spindle Drill Press. Good Order.
24 in. in Hendey Drill Press.

1 24 in. B. G. P. F. Drill Press. Good Order.
1 24 in. Plain Drill Press. Good Order.
3 34-in. Drill Presses. Good Order.
2 36-in. B. G. New Haven Drill Presses. G. O.
1 24-in. Acme Single Drill Press. Good Order.
2 750-lb. Steam Hammers (Bement, Miles & Co.)
Good Order.

1 Punch, 18-in. throat, to punch 1 in. hole in 3/4-in. iron. A1 Order.

1 Plain Milling Machine. Good Order.

1 Niles Universal Mill, 6-in. Univ. chuck fitted. Good Order.

We have in stock or in process of construction at our Works a full line of Engine Lathes, Planers, Crank and Geared Shapers, Drill Presses, Improved Cabinet, Fox, Monitor, Square Arbor and Turret Chucking Lathes, Valve Millers, Cock Grinders, Slide Rests, etc.

Our Stock is constantly changing.

Write for full particulars and prices.

Outfits a specialty.

LODGE & DAVIS MACHINE TOOL CO.

MANUFACTURERS OF
IRON AND BRASS WORKING MACHINERY.
NEW YORK STORE, 64 CORTLANDT STREET.
WORKS, CINCINNATI, OHIO.

WESTERN HOUSE, 68-70 S. CANAL ST. CHICAGO.

STORE—S. E. COR. WATER & MARKET STS., PITTSBURGH.

BOSTON OFFICE, NO. 23 AND 25 PURCHASE STREET.

DESIRABLE CARDS FOR SALE.

Twenty 40-inch Full Roller English Cards, Howard & Bullough make, with 24-inch doffers, fast combs, excellent clothing and condition. May be seen at Richmond, Va.

Two 40-inch two-beater English Loppers, in best condition, at Troy, N. Y.

Full details and prices on application.

G. W. ARNOLD,
532 Fulton Street TROY, N. Y.

LIST OF DISPLACED WESTINGHOUSE STANDARD AUTOMATIC ENGINES, IN GOOD RUNNING ORDER, FOR SALE CHEAP BY THE SOUTHERN COTTON OIL CO., GIRARD NATIONAL BANK BUILDING, PHILADELPHIA, PA.

4 60 horse-power Engines, at New Orleans, La.
1 100 horse-power and one 60 horse-power, at Montgomery, Ala.
1 150 horse-power, at Atlanta, Ga.
2 150 horse-power, two 45 horse-power and one 60 horse-power, at Savannah, Ga.
2 45 horse-power, one 60 horse-power and one 150 horse-power, at Columbia, S. C.
1 75 horse-power, at Houston, Texas.

ALSO LIST OF DISPLACED HYDRAULIC PUMPS, IN GOOD RUNNING ORDER, MADE BY THE SMITH & VAILE CO. AND NOW AT THE FOLLOWING MILLS OF THE SOUTHERN COTTON OIL CO.:

Houston, 10; New Orleans, 8; Montgomery, 5; Atlanta, 5; Memphis, 5; Little Rock, 5, and Savannah, 1—in all 39.

FOR SALE.

Complete set of Spoke Machinery, used not over four months. Cost \$1,500. Offer wanted.

2

BOLT HEADERS—Several improved Lewis; will make up to 1 1/4 in.; all guaranteed. Can see some of this make working in New York City.

3

No. "O" KNOWLES STEAM BOILER FEED PUMP, \$25.

4

10 NEW HAND-MADE ROAD MACHINES, two horse, perfect. Adapted to country road-making, scraping ice, etc. Send for circular and price.

5

ACME BOILER COMPOUND will do satisfactory work. Will send anywhere to be tried strictly on its merits. If satisfactory pay for it; if not, no charge. Send me trial order.

6

FIVE TONS ONE INCH OCTAGON STEEL, made for gun barrels. Buyer struck a hard spot and rejected same. A1 for bolts, braces, railings, etc. Can you use it?

7

50 BARRELS LIGHT AND MEDIUM MACHINERY OIL, guaranteed. Will ship anywhere. If satisfactory pay me 18 or 25 cents (according to which grade is shipped); if otherwise, return and I will pay freight both ways.

8

If you use steel, brass or bronze castings, send descriptions and secure my figures before placing order.

H. H. MANSFIELD,
126 Liberty Street, NEW YORK

Machinery, New and Second-Hand For Sale.

96 in. swing, 26 ft. bed, h's raised to sw'g 13 ft. A.

50 in. swing, 20 ft. bed, for rolling mill forg's new.

30 in. swing, 28 ft. bed, Pond Machine tool Co.

Shafting Lathe, A1.

32 in. swing, 12, 14, 16, 18 ft. beds. New.

28 in. swing, 12, 14, 16, 18 ft. beds. New.

21 in. swing, 10 and 12 ft. beds. New.

20 in. swing, 2 1/2 and 3 ft. beds. Ames. Good.

18 in. swing, 6 and 8 ft. beds. Several makers.

16 in. swing, 6 and 8 ft. beds. Several makers.

15 in. swing, 6 and 8 ft. beds. Several makers.

14 in. swing, 6 and 8 ft. beds. Several makers.

13 in. swing, 6 and 8 ft. beds. Several makers.

12 in. swing, 6 and 8 ft. beds. Several makers.

11 in. swing, 6 and 8 ft. beds. Several makers.

10 in. swing, 6 and 8 ft. beds. Several makers.

9 in. swing, 6 and 8 ft. beds. Several makers.

8 in. swing, 6 and 8 ft. beds. Several makers.

7 in. swing, 6 and 8 ft. beds. Several makers.

6 in. swing, 6 and 8 ft. beds. Several makers.

5 in. swing, 6 and 8 ft. beds. Several makers.

4 in. swing, 6 and 8 ft. beds. Several makers.

3 in. swing, 6 and 8 ft. beds. Several makers.

2 in. swing, 6 and 8 ft. beds. Several makers.

1 in. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing, 6 and 8 ft. beds. Several makers.

1 ft. swing

SOUTHERN LUMBER DIRECTORY.**A List of Lending Lumber Dealers and Manufacturers in the South.**

This list of representative Southern lumber merchants and manufacturers is published for the benefit of those who desire to reach responsible houses in this branch of business in the South. Readers of the MANUFACTURERS' RECORD who have occasion to correspond with any of the firms mentioned below will confer a favor by mentioning this paper.

Yellow Pine.

I. B. Gordon & Co., Alpine, Ala.
Villa Rica Lumber Co., Anniston, Ala.
J. R. Adams & Sons, Birmingham, Ala.
Hawkins & Smith, Birmingham, Ala.
C. T. Hughes & Co., Birmingham, Ala.
Riddle & Simpson, Birmingham, Ala.
Southern Supply Co., Birmingham, Ala.
Marbury & Jones, Bozeman, Ala.
D. W. & U. Blacker, Brewton, Ala.
W. W. Weaver, Castleberry, Ala.
J. A. Dudley, Clanton, Ala.
O. A. Duke, Clanton, Ala.
L. B. Wells, Clanton, Ala.
H. C. Higman & Co., Decatur, Ala.
Dunham Lumber Co., Dunham, Ala.
Gadsden Lumber Co., Gadsden, Ala.
Tuscaloosa Lumber Co., Hall, Ala.
Bay City Lumber Co., Mobile, Ala.
E. B. Vaughan, Mobile, Ala.
Alabama Lumber Syndicate, Montgomery, Ala.
S. B. Allen & Co., Montgomery, Ala.
W. A. Drives & Co., Montgomery, Ala.
Moore, Kirkland & Co., Montgomery, Ala.
Wagar Lumber Co., Wagar, Ala.
W. W. Wadsworth, Wadsworth, Ala.
Arkadelphia Lumber Co., Arkadelphia, Ark.
Empire Lumber Co., Ashton, A. K.
Long Bell Lumber Co., Buckner, Ark.
Cotton Bell Mill Co., Cotton Belt, Ark.
Eagle Lumber Co., Eagle Mills, Ark.
Red River Lumber Co., New Lewisville, Ark.
A. J. Nelmeyer Lumber Co., Waldo, Ark.
Fordyce Lumber Co., Fordyce, Ark.
The Florida Phosphate Co., Ltd., Phosphoria, Fla.
J. S. Betts & Co., Ashburn, Ga.
Gress Lumber Co., Atlanta, Ga.
Wilson Coal & Lumber Co., Atlanta, Ga.
Donalson Lumber Co., Donalsonville, Ga.
Perkins Manufacturing Co., Augusta, Ga.
Stillwell, Millen & Co., Savannah, Ga.
E. B. Hunting & Co., Savannah, Ga.
Georgia Lumber Co., Savannah, Ga.
F. F. Putney, Hardaway, Ga.
Charles Bewich & Co., Hazelhurst, Ga.
Alderfer & Bull, Isabella, Ga.
Hagan & Winger, Kensington, Ga.
J. A. Williams, Sumner, Ga.
A. J. Duncan & Co., West Bowersville, Ga.
W. E. Mayne, Carpenter, Ky.
P. Hendrickson, Conant, Ky.
Perkins & Miller Lumber Co., Ltd., Westlake, La.
Lock-Moore & Co., Ltd., Westlake, La.
R. J. Aycock, Longstreet, La.
C. P. Brasher, Marthaville, La.
Joseph Horst, Maugansville, Md.
Elliott, Crawford & Co., Myrtle, Miss.
P. B. Myers & Son, Myrtle, Miss.
Ocean Springs Lumber Co., Ocean Springs, Miss.
B. J. Cansey, West, Miss.
Cary E. Spence, Pass Christian, Miss.
Keystone Lumber & Imp. Co., Bogue Chitto, Miss.
J. S. Blackburn, Ellisville, Miss.
W. L. Rankin & Bro., Shannon, N. C.
A. E. Rogers, Mullins, S. C.
R. F. Moss, Booker, Va.
The A. F. Withrow Lum. Co., Millboro Depot, Va.
U. B. Simpson & Son, Naruna, Va.

North Carolina Pine.

Page Lumber Co., Aberdeen, N. C.
The Greenville Land & Imp. Co., Greenville, N. C.
Gulf Lumber Mfg. Co., Greensboro, N. C.
Goldsboro Lumber Co., Goldsboro, N. C.
G. Vyne & Son, Wilkesboro, N. C.
John Hickson & Co., Lynchburg, Va.

Cypress.

Morris & England, Keo, Ark.
Cypress Lumber Co., Sherrill, Ark.
T. O. Wilson Lumber Co., Tilar, Ark.
Nuchner & Brown, Peach Orchard, Ark.
Moline Lumber Co., Helena, Ark.
J. M. Milburn & Bro., Greenway, Ark.
J. C. McCain, Greenway, Ark.
W. R. Emerson, Emerson, Fla.
J. C. Burleigh, Midland, Fla.
F. S. Bamberg, Jasper, Fla.
S. J. Temple, Temple's Mills, Fla.
J. P. Little, Sumter, Fla.
Geo. H. Barker, Waldo, Fla.
A. A. Bunnell, Raulerson, Fla.
Windemere Land & Lumber Co., Windemere, Fla.
Kelly, Cosby & Co., Jug Tavern, Ga.
Dietrich & Dossen, Lenox, Ga.
W. T. McArthur, McArthur, Ga.
W. H. Moxley & Co., Macon, Ga.
W. R. Peterson & Co., Wadley, Ga.
Lawless & Kyle, Franklin, La.
Louisiana Cypress Lumber Co., Harvey, La.
Callahan & Lewis Mfg. Co., Patterson, La.
McEwan & Murray, New Orleans, La.
Hanson & Smith, Wilmington, N. C.

J. C. Fulton, Aransas Pass, Texas.
Calcasien Lumber Co., Austin, Texas.
M. T. Jones & Co., Childress, Texas.
J. H. Folkey, Korville, Texas.

Hardwoods.

North Alabama Lumber Mfg. Co., Bridgeport, Ala.
Bridgeport Lumber Co., Bridgeport, Ala.
Hill & Mitchell, Center Star, Ala.
W. A. Koeppe, Coaling, Ala.
Decatur Lumber Co., Decatur, Ala.
H. S. Freeman, Decatur, Ala.
Black Warrior Lumber Co., Demopolis, Ala.
Alabama Lumber & Mfg. Co., Gurley, Ala.
G. Vaughan, Hollywood, Ala.
C. G. Huffman, Hollywood, Ala.
Clifton & Hendrix, Jasper, Ala.
Elliott & Carter, Jasper, Ala.
W. M. Beatty, Austin, Ala.
J. W. Ray, Arkadelphia, Ark.
Desha Lumber Co., Arkansas City, Ark.
Batesville Lumber Co., Batesville, Ark.
Russell & Elder, Beebe, Ark.
South's Hardwood Lumber Co., Black Rock, Ark.
E. M. Ford Land & Timber Co., Gilmore, Ark.
Kelley & Wells Lumber Co., Newport, Ark.
Cream City Lumber Co., Lamberthville, Ark.
J. M. Mefert, Lowell, Fla.
Ray & Geise, Bronwood, Ga.
Altamaha Cypress Lumber Co., Brunswick, Ga.
Montford & Mitchell, Butler, Ga.
Glasgow & Henderson, Casville, Ga.
Green & Eshum, Clay Hill, Ga.
W. H. Allen, Cordele, Ga.
Greer Bros., Ada, Ga.
D. T. Harris, Dixon, Ga.
W. T. Opie, Dover, Ga.
A. J. McMullen, Hartwell, Ga.
Matthews & Anderson, Knoxville, Ga.
R. W. Ballard, Newton Factory, Ga.
O. W. Wadley, Rogers, Ga.
L. T. Browner, Adairville, Ky.
G. W. Hummer, Adairville, Ky.
W. Conn & Son, Bedford, Ky.
Snider Bros., Berea, Ky.
Gibson & Hale, Flat Lick, Ky.
J. L. Naylor, Wickliffe, Ky.
Samuel Anglen, Lafayette, Ky.
H. E. Miller, Lewisburg, Ky.
Fetter Cochran & Co., Louisville, Ky.
J. C. Williamson, Mouth of Pond, Ky.
The Cumberland Co., Middlesborough, Ky.
Waters & Bringhurst, Pineville, La.
J. H. McBride, Winnfield, La.
The Loomis & Hart Mfg. Co., Chattanooga, Tenn.
E. Cravens, Bagwell, Texas.
Jas. M. Williams, Charlottesville, Va.
Smith & Co., Reedy Ripple, W. Va.
Shelly & Wrigman, Romney, W. Va.

Shingles.

A. C. Danner, Mobile, Ala.
J. Bradley, Hartsell's, Ala.
Conecuh & Patsaliga Lumber Co., Luverne, Ala.
G. N. Buchanan, Luverne, Ala.
J. D. Cameron & Son, Mobile, Ala.
Mobile Shingle Co., Mobile, Ala.
Mountain & Sons, Mobile, Ala.
C. G. Richards & Son, Mobile, Ala.
Stewart & Butt, Mobile, Ala.
Gulf States Lumber Co., Montgomery, Ala.
D. Goulet & Co., Black Rock, Ark.
F. McKay, Black Rock, Ark.
Camden Shingle Mill Co., Camden, Ark.
Price Lumber Co., Paragould, Ark.
Carey & Ollinger, Bagdad, Fla.
A. L. Wellman & Co., Beresford, Fla.
Florida Shingle Mills, Brooksville, Fla.
W. Springate & Son, Brooksville, Fla.
Mearns Shingle Mill, Davenport, Fla.
Wm. A. McCann, Jacksonville, Fla.
A. G. Russel, Oviedo, Fla.
Little & Chapman, Rosewood, Fla.
Atlanta Lumber Co., Atlanta, Ga.
P. G. Grant, Atlanta, Ga.
T. E. Collier, Cordele, Ga.
King & Burch, Hawkinsville, Ga.
Yarbrough & Perry, Fullington, Ga.
Ino. Akers & Co., Scotland, Ga.
Baily Bros., Toccoa, Ga.
Mayfield Shingle Co., Wishart, Ga.
Worth Lumber Co., Worth, Ga.
G. W. Cleare, Coalton, Ky.
Monroe Smith, McKinney, Ky.
The J. H. Poe Shingle Co., Lake Charles, La.
Harris & Thornton, Chattanooga, Tenn.
L. Miller Shingle Co., Orange, Texas.
Kizer Lumber Co., Texarkana, Texas.
Fritz Sitterding, Richmond, Va.
Gurley & Rogers, Norfolk, Va.
Nottingham & Wrenn, Norfolk, Va.
Ino. L. Roper Lumber Co., Norfolk, Va.

Staves and Heading.

F. W. Sharp & Co., Larkinsville, Ala.
J. R. Adams & Son, Longview, Ala.
Montgomery Stave & Fldg. Co., Montgomery, Ala.
J. C. Sheets & Co., Montgomery, Ala.
P. V. Deland, Black Rock, Ark.
Hammett & Bailey Stave Co., Greenway, Ark.
Arkansas Stave Works, Greenway, Ark.
J. F. Hasty & Son, Paragould, Ark.
G. M. Rosegrant, Paragould, Ark.
Wilson Bros., Piggott, Ark.
Backus Bros., Pine Bluff, Ark.
Little Rock Cooperage Co., Little Rock, Ark.
Tampa Lumber Co., Tampa, Fla.
Hagan & Platt, Pine Level, Fla.

R. H. Brewer, Cedartown, Ga.
Georgia & Tennessee Lumber Co., Laconia, Ga.
F. H. Waring & Co., Cement, Ga.
Allen & Briggs, Bardwell, Ky.
F. B. Freeman, Cumberland Falls, Ky.
Johnson & Overshiner, Hopkinsville, Ky.
T. H. Mehan, Louisville, Ky.
J. G. Evans & Co., Moorehead, Ky.
Tippett & Co., Moorehead, Ky.
Edward Farley, Paducah, Ky.
Lester & Little, Sloans Valley, Ky.
Pinnell & Webb, Somerset, Ky.
George D. Eike, New Orleans, La.
E. O. Felton, Roanoke, W. Va.
J. Beckwith & Co., Waverly, W. Va.

Railroad Ties.

W. J. Felt, Greenup, Ky.
G. & A. Kopp, Louisville, Ky.
Southern Tie & Lumber Co., Louisville, Ky.
James S. Pope, Halls, Md.
P. L. Conquest & Co., Norfolk, Va.

Spokes and Handles.

Jacob Wise & Son, Fulton, Ky.
Paducah Handle Works, Paducah, Ky.
Hendersonville Mfg. Co., Hendersonville, N. C.
Rutherfordton Sp. & Hd. F. Y., Rutherfordton, N. C.
C. J. Dundas, Statesville, N. C.
Thomasville Spoke Works, Thomasville, N. C.
Johnson Bros., Brownsville, Tenn.

For the convenience of the many readers of the MANUFACTURERS' RECORD it has been deemed advisable to collect under this head a reliable list of Realty Agencies of the Southern States. The value of such a list for the purpose of Ready Reference will immediately become apparent to all who are interested in the growth of this section.

DISTRICT OF COLUMBIA.

WASHINGTON, D. C.—**Chas. A. McEuen**,
Real Estate, Loans and Insurance, 1420 F. St.

FLORIDA.

OCALA—**J. V. Barker**, Phosphate, Pine and Cypress Timber Lands. Loans negotiated.

GEORGIA.

MACON American Investment & Loan
Co. owns valuable Real Estate in and around Macon. Real estate secured for investors.

SAVANNAH—**Jackson & Whately**,
Counselors at Law, Real Estate and Collection
Department. W. G. Woodfin, manager.

NORTH CAROLINA.

ROCKY MOUNT—**Geo. S. Sartin**, Town
Lots, Acre Property, Farms.

NORTH WILKESBORO—**W. F. Trogdon**,
Town Lots and Farm Lands.

OLD FORT—**O. H. Blocker**, Real Estate,
Timber and Mineral Lands.

RALEIGH—**J. M. Broughton & Co.**, Real
Estate, city and country realty.

ROCKY MOUNT—**Arrington & Arring**,
Real Estate. Correspondence invited.

WINSTON—**E. R. Amis**, Real Estate. First-
class investments a specialty.

TENNESSEE.

MEMPHIS—**Hodge & Bro.**, 59 Madison St.,
Real Estate Agents and Dealers.

MISSOURI.

CHARLOTTESVILLE—**J. C. McKenney &
Co.**, Real Estate and Insurance Brokers.

NEWPORT NEWS—**Cottrell Company**,
Real Estate. Correspondence invited.

NORFOLK—**A. W. Cornick & Co.**, Real
Estate Agents, 102 Main Street.

FULTON COLVILLE,**ATTORNEY AND COUNSELLOR AT LAW,**

Gate City Bank Building, ATLANTA, GA.

Special attention given Collections, Commercial
and Corporation Law. Attorney for Lorry Banking
Co., Atlanta, and Manufacturers' Record
Baltimore.

C. J. Haden.
ATTORNEY AT LAW,
ATLANTA, GA.

Gives special attention to the collection of rail-
way overcharge claims and to business before the
Georgia Railway Commission and the Interstate
Commerce Commission; also to the purchase and
sale of and examination of titles to

Southern Timber Lands.**ARCHITECTURAL FOUNDRIES**

Wishing to manufacture upon a royalty Duvin
Co.'s system of ANCHOR PLATES and Cap
for Posts for Self-Releasing Beams in building
construction or purchase State right. It is an
Anchor and bearing plate combined, requires no
splitting of bricks. Address

P. DUVINAGE & CO.
371 Fulton Street, BROOKLYN, N. Y.

FIRE BRICK

FOR
BLAST and GAS FURNACES, COKE OVENS, &c.

SOUTHERN FIRE BRICK WORKS,
RICHMOND, VA.

Correspondence solicited. P. O. Box 290.

MANUFACTURERS DESIRING**Factory Sites**

Will find it to their advantage to
communicate with

W. W. WATSON & CO.

225 Dearborn St., CHICAGO, ILL.
REPRESENTING
ALPINE HEIGHTS.

The Southern Information Bureau

*It Undertakes to Explain, from personal fa-
miliarity with the country, the opportunities the South has to offer to
those in the North who are fashioning into wares
and fabrics the natural products of Southern
fields and mountains; and, in fact, to provide,
through its Southern and its Northern Branches,
a medium by which the inquirer and his object
may be brought into communication. Write us.*

**541 EXCHANGE BUILDING,
BOSTON, MASS.****"AMONG THE OZARKS."**

The Land of Big Red Apples is the
title of an attractive and highly interesting
book recently issued. It is handsomely illus-
trated with views of South Missouri scenery,
including the famous Olden fruit farm of 3,000
acres in Howell county. It pertains entirely to
fruit-raising in that great fruit belt of America,
the southern slope of the Ozarks, and will prove
of great value, not only to fruit-growers, but to
every farmer and home-seeker in other States
looking for a farm and a home.

Mailed free
Address
J. E. LOCKWOOD,
Kansas City, Mo.

SELLERS

of anything that is required

by Machinists,

Foundrymen, Iron

Manufacturers, Coal and

Iron Ore Miners,

Textile Manufacturers,

Woodworkers and

Artisans of every class can

reach more customers

through the

MANUFACTURERS' RECORD

than in any other way.

BALTIMORE, MD.

BUYERS

of Machinery, Tools,

Mining and Manufacturing

Supplies, can find

anything they need by

referring to the

advertising pages of the

MANUFACTURERS' RECORD.

Manufacturers

Contemplating a move South should "look up" Columbus City, Ala. Its natural resources make it the ideal spot of the South for an industrial city. Its promoters will deal as liberally with manufacturers as nature has dealt with the city.

If you are contemplating a move South, place yourself in communication with the Southern Industries Co., agents for Columbus City Mining, Manufacturing & Development Co., 1 Beacon Street, Boston; 88 Pulitzer Building, New York City; 152 La Salle Street, Chicago; 617 14th Street, Washington; 504 Richardson Building, Chattanooga, Tenn.; 673 Elm Street, Manchester, N. H.; 107 Olive Street, St. Louis, Mo.

Enterprises to locate at Columbus City: \$100,000 National Bank, capital all paid in; Smelting Furnace—Weaver & Rogers Co., Chicago, Ill.; Car Works—Harris Car Co., Woolen Mills—Reynolds Bros., Davisville, R. I.; Brick Manufacturing Co.—Messrs. Baker, Cavanaugh & Verrill, Holyoke, Mass.; Electric Light Company—Gatcomb Bros. & Co., Milling and Supply Co.—C. C. Milling & Supply Co., Furniture Factory—G. H. Stevens & Co., Chicago, and contracts closing with other industries daily.

A. M. COCHRAN,
Real Estate and Mining
BROKER
GAINESVILLE, GA.

W. J. WILLIAMS.
General Agent for Supplies used in the Construction and Operation of
Water Works, Electric Plants, Machine Shops

MILLS and STEAM USERS.
Office, No. 202 N. Texas Bank Building, DALLAS, TEXAS.

TELEGRAPH LINES.

J. J. COILE & CO.,
Mount Horeb, East Tennessee, make Telegraph Lines in complete working order a specialty. Wiring by Contract at Low Figures.

WORK GUARANTEED FIRST-CLASS.
Correspondence Solicited.

Eco Magneto Watchman's Clock
An Electric Watchman's Clock Without Batteries.

It dispenses entirely with a Battery. It cannot be tampered with nor false records be made on it.

C. D. BERNSEE,
Temple Court Building, NEW YORK CITY.

Important to All Corporations.

Every Incorporated Company should USE KAUFFMAN'S Copyrighted Forms of Improved Record Book, Transfer Book, Stock Register, Stock Ledger and other valuable Books. Write for Descriptive Circular. Address

CORPORATION BOOK CO.
Room 35, Lucas Bldg., 1826 Chestnut St., Philadelphia, Pa.

Canning Machinery.

Especially adapted to the South. Full instructions furnished for putting up outfit; also for processing all the various canned goods without the aid of skilled labor.

A. K. ROBINS & CO.
724 E. Pratt Street, BALTIMORE, MD.

CANNING FACTORIES
BUILT AND
Equipped Complete

CANS AND CANNERY SUPPLIES OF ALL KINDS.

DANIEL G. TRENCH & CO.
CHICAGO.

FOR WHITE OR NORWAY

Pine Box Shooks

IN CARLOAD LOTS.

ADDRESS

WM. HORNER, Reed City, Mich.

THOS. J. SHRYOCK & CO.

WHOLESALE

Lumber and Commission Merchants,

YELLOW PINE and HARDWOOD,

Shryock's Wharf, Baltimore, Md.

Correspondence Solicited.

HOPKINS, DWIGHT & CO.

COTTON, COTIONSEED OIL

AND

SOUTHERN PRODUCE

COMMISSION MERCHANTS

Room 52, Cotton Exchange Bldg.,

NEW YORK.

Gustavus C. Hopkins. Lucius Hopkins Smith.
Charles D. Miller. Samuel Hopkins.

The Taper-Sleeve PULLEY Works

OF ERIE, PENNSYLVANIA,

was organized and began the Manufacture of Wooden Pulleys both whole and split, in 1873, and are the oldest Manufacturers of Wooden Pulleys for the trade by nearly ten years, not only in this Country but in the World. All other makers of Wood Pulleys, without exception are copyists and imitators of our work.

We had a splendid exhibit at the Centennial in Philadelphia in 1876, and there were no other exhibitors of Wooden Pulleys at that fair.

We are the oldest Manufacturers of Clutch Pulleys, Cut off Couplings and Dead Pulleys, also Shafting, Hangers and Couplings.

FERTILIZERS. CHEMICALS.

Pure Ground Bone, Sulphate of Ammonia, Super and Acid Phosphates.

STANDARD GUANO & CHEMICAL MFG. CO.

14 Union Street, New Orleans, La.

BUYERS OF COTTON EED.

KINGAN & CO.

PORK PACKERS

RICHMOND, VA.

MANUFACTURERS OF

PURE LARD and PURE LARD OIL.

JORY & CO.

S. E. Cor. Baltimore & Light Sts., BALTIMORE, MD.

Brass and Bevelled Plate **SIGNS** Engraving, Carving.

Glass **EMBOSSED GILDING ON GLASS.**

Newest Designs, Finest Work, Lowest Prices.

HAND STAMPS, Rubber, Brass and Steel.

CHECK PUNCHES, STENCILS, Etc.

CONSECUTIVE and DUPLICATE NUMBERING MACHINES

Mail orders given special attention. Send for Catalogue and Price List. Refers New York office of this paper.

ERNEST COATES, 48 Broad St., New York.

STIEFF PIANOS

UPRIGHTS, GRANDS AND SQUARES.

Highest grade Instruments manufactured. Endorsed and preferred by the best schools and musical authorities. Only Upright Piano on the market to day equal to the Grand. Reasonable terms. Old pianos taken in exchange. Pianos for rent. A large assortment of Organs constantly on hand. Send for illustrated piano and organ catalogue. Inducements on second-hand Pianos.

Tuning promptly attended to.

CHARLES M. STIEFF.

Warerooms: Baltimore, 9 N. Liberty Street; Chicago, 178 Wabash Avenue; Philadelphia, 1204 N. 5th Street; Washington, 417 11th Street, N. W.

PIANOS and ORGANS.

More than 250,000 ESTEY ORGANS in use.

PIANOS,

Weber, Decker Bros., Estey, Fischer and Ivers & Pond.

The Leading Instruments of the World.

SANDERS & STAYMAN,

No. 13 North Charles Street,

BALTIMORE, MD.

DRAWING AND LETTERING
AND 20 YEARS EXPERIENCE.
PLANS—CITIES, TOWNS,
AND ESTATES, DESIGNS &c.
Drawn and Lettered for Record
or Photographic PHOTO PRINTING PROCESS.

A. HOEN & CO.

Engravers and Lithographers,
RICHMOND, VA.

Furnish high class Artistic Work in
BONDS, CERTIFICATES OF STOCK, COMMERCIAL STATIONERY,

And make a specialty of

SHOWCARDS, LABELS

AND COLOR WORK GENERALLY

Write for Samples and Prices.

ENGINES & BOILERS

Stationary & Semi-Portable.

8 to 25 HORSE-POWER.

High in Grade.

Low in Price.

Send for Pamphlet.

The W. C. LEFFEL CO.

Greenmount Ave., Springfield, O.



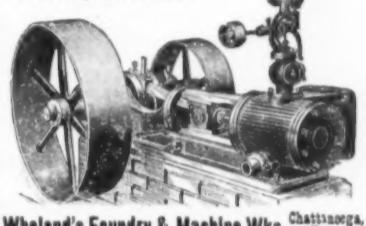
ENGINES STATIONARY AND PORTABLE.

10 to 75 Horse-power. For all purposes.

Highest efficiency and superior construction.

Moderate cost.

Send for printed matter.

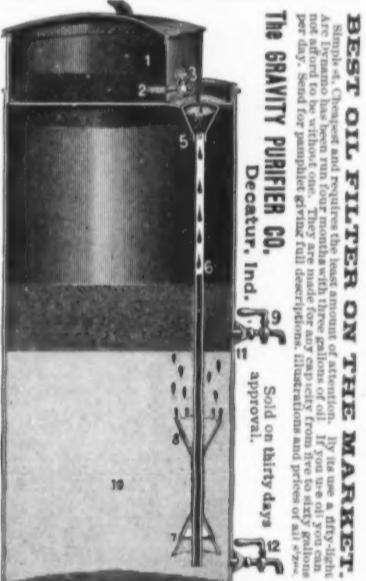


Wheland's Foundry & Machine Wks., Chattanooga, Tenn.

THE STEAM BEST "THE GARFIELD" Double Jet Injector, Adapted to every condition of Boiler service.

Address THE "GARFIELD" INJECTOR CO., Lock 69, WADSWORTH, O.

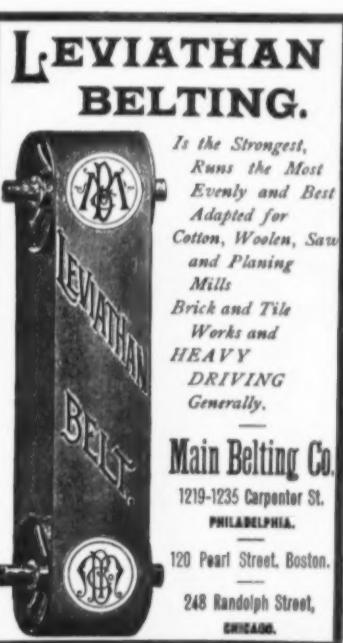
I.F.
You have tried to make money, sawing lumber, and have just paid expenses. BUY A SOULE STEAM FEED, You will soon get rich. SOULE STEAM FEED WORKS, MERIDIAN, MISS.



BEST OIL FILTER ON THE MARKET

Are you tired of having to clean and revivify the least amount of attention. By its use a fifty-gallon tank will never run out of oil. If you use a fifty-gallon tank you can not afford to be without one. There is no loss of time from reviving tanks to ready oil. Send for pamphlet giving full descriptions, illustrations and prices of all sizes.

Sold on thirty days approval.



LEVIATHAN BELTING.

Is the Strongest, Runs the Most Evenly and Best Adapted for Cotton, Woolen, Saw and Planing Mills, Brick and Tile Works and HEAVY DRIVING Generally.

Main Belting Co.

1219-1235 Carpenter St.

PHILADELPHIA.

120 Pearl Street, Boston.

248 Randolph Street, CHICAGO.

DESIRABLE OFFICES

CAN NOW BE RENTED IN THE NEW

MANUFACTURERS' RECORD BUILDING

Baltimore, Md.

This seven-story building is located at the corner of North and Lexington Streets, within a few yards of the Post-office and City Hall and near all the Law Courts. The offices are large, light and always cool in summer. The building is elegantly finished in oak, is heated by steam and lighted by gas and electricity, and has an Otis electric elevator. There are no more desirable offices in Baltimore, and the rentals are low.

FOR PARTICULARS ADDRESS

THE MANUFACTURERS' RECORD,

BALTIMORE, MD.

If You Want to Know

Anything about the South, about its resources, the progress of its development, the establishment and growth of new enterprises, you can find it all in the MANUFACTURERS' RECORD, and only there. There is no other medium that will keep you so well posted about anything that pertains to the South.

The MANUFACTURERS' RECORD is published weekly, and will be mailed to you one year for Four dollars, six months for Two dollars, or three months for One dollar. Sample copies free.

BALTIMORE, MD.

PARKHURST BURR PICKER.
BEST FOR WOOL OR COTTON. Burr Pick-
ing with cards is expensive. If you doubt it,
write to

THE ATLAS MFG. CO.

NEWARK, N. J.

MAKE MONEY

BY USING

The Sailor Cotton Elevator.

Dudley E. Jones Company,
Makers,
Little Rock, Ark.

Send for our Catalogues and special printed
matter. It only costs a postal card.

EXPANSION BOLTS



For Fastening all Kinds of Structures to Brick
and Stone Work.

Patentee and Manufacturer,
ISAAC CHURCH,
Send for Catalogue.

TOLEDO, OHIO

The Standard Steel Works

MANUFACTURERS OF

Locomotive and
Car Wheel Tires

Office, 220 S. Fourth St., Philadelphia, Pa.

To Architects,
Builders
and Owners.

Attention is called to Fire-Proof and Vermin-Proof
MINERAL WOOL,
As a Lining in Walls and Floors for Preventing the
ESCAPE OF WARMTH AND THE DEADENING OF SOUND.
SAMPLE AND CIRCULARS FREE.
U. S. Mineral Wool Co., 2 Cortlandt Street, N. Y.

MINERAL WOOL

Cold Storage, Ice-House, Dry-Kilns, Green-Houses, Refrigerators, Safe, Boiler
Covering, &c., &c. Send for pamphlets and Sample; mailed free.

ROANOKE MINERAL WOOL COMPANY, Roanoke, Va.

PROTECT YOUR FACTORY FROM FIRE
with a system of
AUTOMATIC

SPRINKLERS

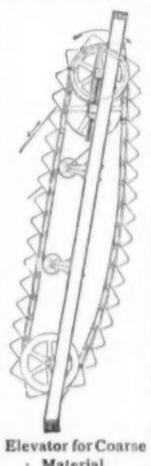
Write to us for
Estimates.

NERACHER & HILL
SPRINKLER CO.
COLUMBUS, GA.
WARREN, O.

McLANAHAN & STONE,
Gasport Foundry, Hoildayburg, Pa.

IMPROVED WASHERS
For Phosphate, Iron, Manganese
and other Ores.

ORE JIGS,
Revolving Screens, Elevators and Conveyors.



Elevator for Coarse
Material.

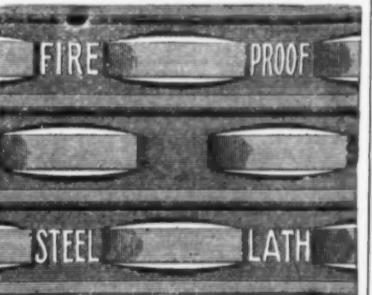
The Plumbers' Favorite

Haines, Jones & Cadbury Co.'s
IMPROVED BLAST FURNACE

Will melt 10 pounds of solder in 6
minutes. Can also be furnished with
oblong shield and solder pot, suitable
for electric lineman's use.

After January 10, all Furnaces will
be furnished with a Rubber Bulb
to fill the reservoir with air.

Haines, Jones & Cadbury Co.
1136 Ridge Ave.
PHILADELPHIA,
PA.

BOSTWICK PATENT.

A GREAT SAVING OF MATERIAL
AND LABOR. Recommended by architects
and extensively used by builders.

ILLUSTRATED PAMPHLET AND SAMPLE FREE.
BOSTWICK METAL LATH CO.
38 Park Row, NEW YORK.
Niles, Ohio, and Wheeling, W. Va.

HEAT, COLD AND VER-
MIN PROOF.
MOST PERFECT INCU-
LATOR KNOWN—Deadening
sound, prevention of spread of fire

PLATE IRON WASHERS
A SPECIALTY!

EVEN IN GAUGE! SMOOTH AND WELL FINISHED!
Write for Prices. Cut From New Plate, Rolled Expressly For The Purpose.

Address, **MILTON MFG CO., MILTON, PA.**

The Cincinnati Tool Co., Cincinnati, O.

MANUFACTURERS OF



Drills for Wood and Metal, Spoke
Shaves, Clamps, Pliers, Saw Sets, &c.

THE CINCINNATI PATENT SAW SET,
Only Saw Set with a regulated blow.

Write or Prices and Catalogue, and mention
this paper.

New York Office, 118 Chambers St.

HENRY SEIM & CO. HEADQUARTERS FOR
GLASS OR EVERY DESCRIPTION FOR BUILDINGS.
BALTIMORE MD.

IMPORTERS
ENAMELED, COLORED, ROUGH,
RIBBED AND PLATE GLASS.
MIRROR PLATES.

Heffernan Stained Glass Works,
WM. A. HEFFERNAN,
PROPRIETOR.
LYNCHBURG, VA.
ECCLESIASTICAL, MEMORIAL AND DOMESTIC ART GLASS.
WRITE FOR PRICES.

**ERNEST V. RICHARDS,
Stained Glass Works**

ART GLASS FOR ECCLESIASTICAL AND DOMESTIC USES.

WILMINGTON, N. C.

H. E. MCWANE, President and General Manager. W. D. CAMPBELL, Secretary and Treasurer.

THE CLAMORGAN COMPANY, Proprietors of

HILL CITY PIPE WORKS

Manufacture all kinds of Blast
Furnaces, Coking and Mining Ma-
chinery; Boilers, Engines, Tram-
way and Construction Machinery,
&c. Prices on application.

LYNCHBURG, VA.

CHATTANOOGA FOUNDRY & PIPE WORKS

DAVID GILES, Pres't. C. B. IBESTER, Vice-Pres't.

M. LLWELLYN, Sec'y. Successors to D. GILES & CO., Chattanooga, Tenn., Manufacturers of



Also
Casting & Patterns
of Every Description Made
to Order.

JOHN W. HARRISON, President and Trea. urer. THOS. HOWARD, Vice-President.

F. H. NICHOLS, ad Vice-President. E. H. QUEEN, Secretary.

P. MCARTHUR, Superintendent.

HOWARD-HARRISON IRON COMPANY,

MANUFACTURERS OF
CAST IRON PIPE

FOR WATER WORKS, GAS WORKS, CULVERTS.

Pipe and Pump Connections. Flexible Joints. Heavy Lead Castings.

Works at BESSEMER, A. L. A. Office at BESSEMER and ST. LOUIS.

J. N. GAMBLE, Pres't. M. C. ARMOUR, Vice Pres't.

ARCHER BROWN, Treas.

E. M. HINCHMAN, Sec'y.

J. K. DODDICK, Genl. Mgr.

M. H. CRAWFORD, Cont. Agt.

THE RADFORD PIPE & FOUNDRY CO.

During 1892 supplied Pipe to Boston, Philadelphia, Baltimore, Syracuse, also Lowell, Fitchburg, West Newton, Mass., and numerous other cities in the West, South and Northwest.

General Offices, CINCINNATI. Eastern Office, BOSTON.

Foundries, RADFORD, VA.; ANNISTON, ALA.

D. SAUNDERS' SONS

MANUFACTURERS OF

**DIE-STOCKS AND VISES**

For LARGE PIPE. These Stocks have CUTTING OFF ATTACHMENT, and both Vises and Stocks are MALLEABLE IRON, light, strong and of superior design and finish. Also PIPE THREADING MACHINES 1/2 inches to 16 inches, Tapping Machines, &c. Send for catalogue to

31 Atherton Street, YONKERS, N. Y.

EHRET-WARREN MANUFACTURING CO., St. Louis, Mo.**Black Diamond****ROOFING**

Eight Years in the South.

Water, Acid and Fire Proof;

More Durable than Metal

FOR ROOFS OF ANY DESCRIPTION.

EASILY APPLIED.

Made EXCLUSIVELY by us in ST LOUIS.

QUALITY AND WORKMANSHIP GUARANTEED.

Write for Catalogue, Prices, Etc.

ICE AND REFRIGERATING MACHINERY AND CORLISS ENGINES. WEISEL & VILTER MANUFACTURING CO., Milwaukee, Wis.**ICE AND REFRIGERATING MACHINERY.**

IMPROVED COMPRESSION SYSTEM. E. C. HILLYER & CO., Manufacturers, NEWPORT NEWS, VA; 7 and 10-ton Machines, complete, in every detail, ready to ship. Send for pamphlet "How to Make an Ice Factory Pay."

THE FRED. W. WOLF COMPANY,

SOLE AMERICAN MANUFACTURERS OF

The LINDE ICE and REFRIGERATING MACHINERY.

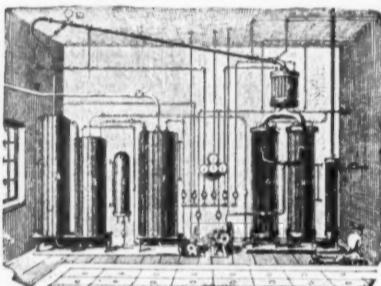
FACTORY: 302 to 330 HATHORN AVENUE.

OFFICES: 556 to 566 N. HALSTED STREET.

CHICAGO, ILL.

Brewery Work and Cold Storage our Specialty.

Plans and Estimates Promptly Furnished.

**THE BURNS MANUFACTURING CO.**

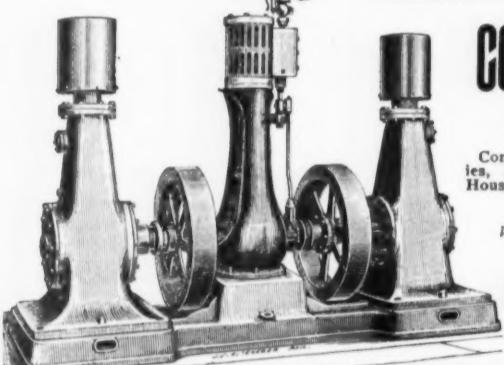
BUILDERS OF

**IMPROVED ABSORPTION
Ice and Refrigerating Machines.**

For Ice Making, Packing Houses, Cold Storage, Creameries and Breweries.

Constructed on scientific principles, giving great est. possible results at minimum cost. Reliable, economical, easily handled and well constructed.

Every Machine Guaranteed. Correspondence Solicited. OFFICE, 827 Equitable Building, ATLANTA, GA.

Ice-Making and Refrigerating MACHINERY.**HORIZONTAL AND VERTICAL****COMPRESSORS**

From One to Fifty Tons Capacity.

Complete Equipment for Ice-Factories, Breweries, Abattoirs, Packing Houses, Hotels, Creameries, etc.

WRITE FOR ESTIMATES.

REMINGTON MACHINE CO.

Manufacturers,

WILMINGTON, DEL.

This Space Reserved for The Newest and Best

UNIVERSAL RADIAL DRILL

EVER PATENTED. For full particulars address

McNAULL MACHINE & FOUNDRY CO., Ronceverte, W. Va.

Established 1874.

MANUFACTURERS OF

Taper Shank Drills,

Straight Shank Drills,

Blacksmith Drills,

Bitstock Drills,

Straight Fluted Drills,

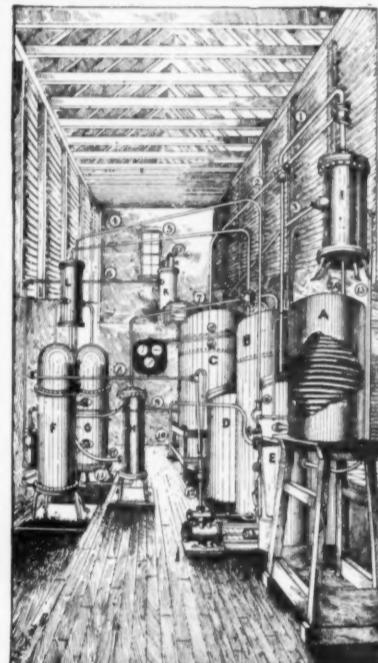
Machine Bit Drills.

Cleveland Twist Drill Co.

Send for Catalogue.

OFFICES—Cor. of Lake and Kirtland Sts., Cleveland, O.

100-102 Reade Street, New York.

**DIAMOND BRAND
Tarred Felts,**ROOFING AND PAVING PITCH,
Building, Sheathing and
Insulating Papers.**"Neponset" Waterprrof Papers.**Send for Catalogue, Prices, Etc., direct
to the Manufacturers.**Keeling's Automatic
Ice Machine,**BUILT BY
Van Winkle Gin & Machinery Co.
200 Marietta St.
ATLANTA, GA.The Best Machine
for Ice Factories,
Breweries,
Refrigeration, &c.**MINERAL PAINT**IN NATIVE COLORS. RED,
BROWN AND BLACK. FOR
BRIDGE, FURNACE AND RAIL-
ROAD USES.

Adapted to Roof, Weatherboard, Iron and Coach Painting. Dry and Mixed. Samples and testimonials free.

VIRGINIA PAINT COMPANY, Manufacturers. J. A. Chew, Manager, Goshen, Va.

**H. W. JOHNS' ASBESTOS
LIQUID PAINTS**SEND FOR SAMPLE CARD AND DESCRIPTIVE PRICE LIST.
H. W. JOHNS' MANUFACTURING CO.,
Sole Manufacturers of H. W. Johns' Asbestos Roofing, Sheathing, Building Felt, Asbestos
Steam Packings, Boiler Coverings, Roof Paints, Fire Proof Paints, etc.VULCABESTON Moulded Piston-Rod Packing Rings, Gaskets, Sheet Packing, etc.
Established 1858. 87 MAIDEN LANE, NEW YORK. PHILADELPHIA, CHICAGO,
BOSTON, LONDON. Southern Branch—23 W. Alabama Street, Atlanta, Ga.**NEW PROCESS TWIST DRILL CO.**

Twist Drills of every description. TAUNTON, MASS.

GRAHAM TWIST DRILL & CHUCK CO., Detroit, Mich.
Sole manufacturers of GRAHAM'S PATENT GROOVED SHANK TWIST DRILLS
and CHUCKS. Endorsed by progressive mechanics everywhere. Send for catalogue.MANUFACTURERS OF
Self-feeding Reamers,
Expanding Reamers,
Shell Reamers,
Stay-bolt Taps,
Taper Reamers.

Write for Discounts.

IRON AND STEEL ROOFING

CORRUGATED.—V. CRIMP.
—STANDING SEAM.—

GALVANIZED IRON — TIN PLATE.
THE CINCINNATI CORRUGATING CO.,
WRITE FOR CATALOGUE AND PRICES. PIQUA, OHIO.



THE GLOBE IRON ROOFING AND CORRUGATING CO.
CINCINNATI, OHIO.
Manufacturers of Superior Grades of all Gauges of
Corrugated Standing Seam, Roll Cap and all styles
ROOFINGS, SIDINGS and CEILINGS.
Write us for Prices and Estimates. Special Discount to the Trade.



J. H. ELLER & CO.
MANUFACTURERS OF
STEEL. ROOFING,
CORRUGATED IRON, DECORATED CEILINGS, Etc.
He quarters for Galvanized Steel Eave Troughs and Conductor Pipes. Write us for prices. Address
Office No. 207 E. 5th St., CANTON, OHIO.



STEEL ROOFING and CORRUGATED IRON.
The latest and Guaranteed to be the BEST.
Write for Samples and Prices.
FOSTORIA STEEL ROOFING CO.
FOSTORIA, OHIO.



Also Plain, Round and Corrugated Conductor Ridge Rolls and Roof Gutters, &c. All made from the very Best Galvanized Steel in 8-foot lengths.
L. D. BERGER, Agent, 224 Arch Street, Philadelphia, Pa.

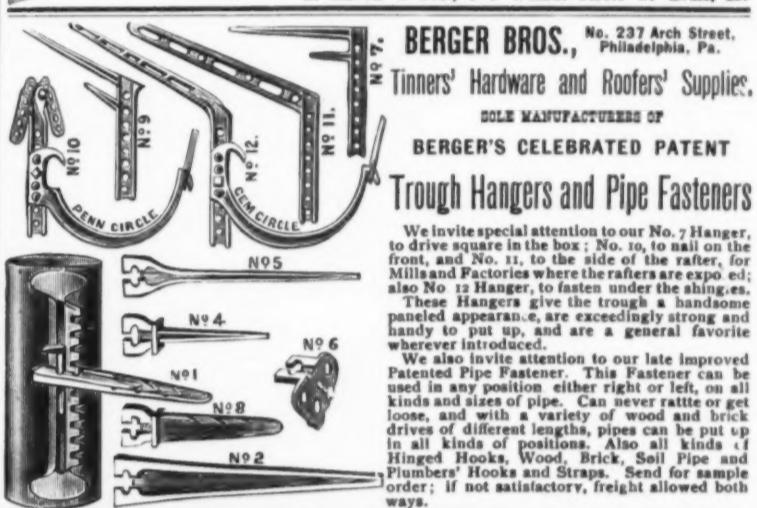
GUTTA PERCHA ROOFING!

FIRE-PROOF
WATER-PROOF
WIND-PROOF

The Great Roofing for the South. Send for Southern Manufacturers' References. For Steep or Flat Roofs, Factories, Mills, Lumber Sheds, etc. Send for Catalogue, Testimonials, Samples, etc.

Empire Paint & Roofing Co., 111 N. FOURTH STREET,
Philadelphia, Pa.

STEEL
CELEBRATED CROWL'S PATENT
CORRUGATED IRON
AND 12 OTHER STYLES
EAVE TRough AND CONDUCTOR PIPE. WRITE FOR PRICES.



Makes a tight roof and pronounced by leading architects the most handsome shingle in the market.

Cortright Metal Roofing Co., MAIN OFFICE AND FACTORY:

Broad and Hamilton Streets, PHILADELPHIA, PA.

Western Office: 134 VAN BUREN ST., CHICAGO, ILL.

Eastern Office: 80 CEDAR STREET, NEW YORK.

Look Carefully through this paper and you may find an advertisement of some machinery or other goods that you are in need of. Preserve this copy for future reference.

THE CANTON STEEL ROOFING CO., CANTON, O.,
MANUFACTURERS OF
PATENT FOLDED LOCK SEAM STEEL ROOFING, CORRUGATED IRON, SAMPLES & PRICE LIST.
CRIMPED EDGE IRON ROOFING AND SIDING, BRASSED IRON SIDING & CEILING, IRON FRAME BUILDINGS, IRON DOORS & SHUTTERS, ROOFING PAINTS, WATER PROOF SHEATHING PAPERS, ETC.

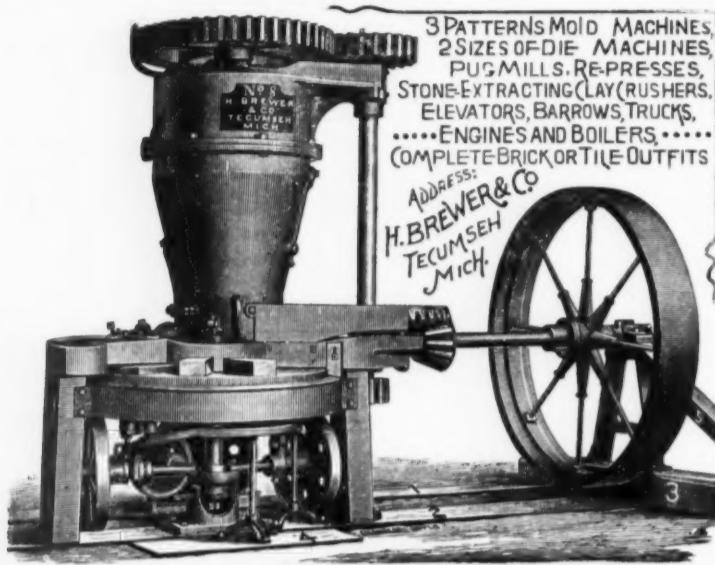
THE WASHINGTON HYDRAULIC PRESS BRICK COMPANY,

MANUFACTURERS OF
ORNAMENTAL, PRESSED, ROCK-FACED AND ROMAN BRICK
IN RED AND BROWN.

BRICK FOR ARCHES
GROUND TO ANY RADIUS.
Correspondence Solicited.

OFFICE,
KELLOGG BUILDING,
WASHINGTON, D. C.

AGENTS FOR
RICKETSON'S MILWAUKEE MORTAR COLORS,
RED, BLACK, BROWN, BUFF.



Chambers' Brick Machinery

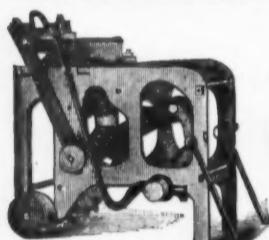


15,000, 25,000, 50,000 PER DAY CAPACITY.

GUARANTEED AND FURNISHED ON THIRTY DAYS' TRIAL.

CHAMBERS BROS. CO., Philadelphia, Pa.

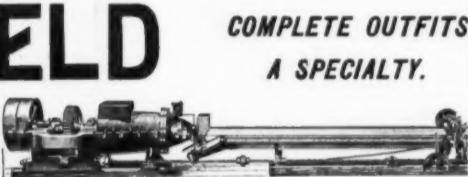
PHILADELPHIA BRICK MACHINE WORKS.



GEORGE CARNELL,
1819-1821 Germantown Avenue and Fifth Street
MANUFACTURER OF
BRICK AND TILE MACHINERY,
STEAM OR HORSE-POWER.
BRICK MACHINES,
ALL KINDS AND SIZES.

Fire and Red Brick Presses, Various Sizes, from the Smallest to 24-Inch; Clay-tempering Machines and all kinds of tools. Send for circular.

PENFIELD BRICK MACHINERY



COMPLETE OUTFITS
A SPECIALTY.

Address
J. W. PENFIELD & SON,
WILLOUGHBY, OHIO.

The POTTS BRICK MACHINES

MANUFACTURERS OF

Horizontal Stock Brick Machine, Disintegrators, all sizes, Mold Sander, Pug Mills and Elevators.

We always carry a large stock of Brickmakers' Supplies, as Molds, Trucks, Barrows, Dump Cars, Winding Drums, Kiln Doors, Grate Bars, Shafting, Pulleys, Belting, &c.

Complete Outfits a Specialty.

Write for catalogue (D).

C. & A. POTTS & CO.,

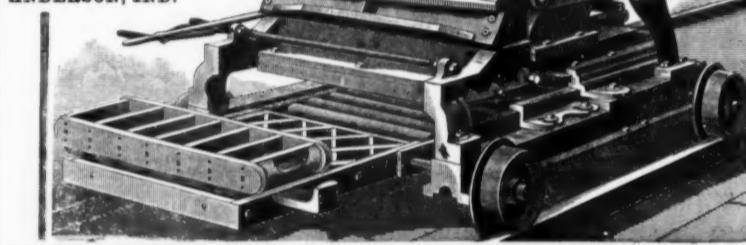
Indianapolis, Ind.

THE NEW Improved Chief Brick Machine.

PUG MILLS, CRUSHERS, ELEVATORS, MOLDS, TRUCKS, BARROWS, ENGINES AND BOILERS.
Full Outfits a Specialty. Send for Catalogue.

Anderson Foundry & Machine Works,

ANDERSON, IND.

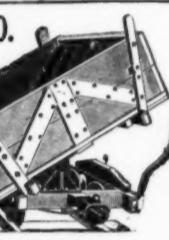


WE FURNISH
Complete Outfits.

RE-PRESSES
for every
duty.
C. W. RAYMOND & CO.
DRYTON, OHIO.

CLAY
Working
Machinery

Catalogue. + + +



OHIO BRICK AND TILE MACHINES UNQUALD FOR Building, Paving and Fire Brick.

Six sizes. Capacity 10,000 to 60,000 daily.
Drain Tile, Hollow Building Blocks, etc.

PUG MILLS,
CLAY CRUSHERS,
SHAFTING,
PULLEYS,
BELTING,
CASTINGS.

Send for catalogue.

E. M. FRESE & CO. GALION OHIO, U. S. A.

BRICK, TILE and TERRA COTTA MACHINERY

CAPACITY 10,000 to 100,000 Per Day. Full Factory Outfits Cutting Tables, Dry Pans, Pug Mills, Clay Crushers, Re-presses, Winding Drums, Dump Cars, Drying Cars, Transfer Cars, Turn Tables, Elevators, Screens, Shafting, Pulleys, Belting.

The Latest and Best. SEND FOR CATALOGUE.

ADDRESS THE FREY, SHECKLER COMPANY, BUCYRUS, OHIO, U. S. A.

Central Machine Works, F. G. & J. N. KAUFHOLZ, Proprietors.

MANUFACTURERS OF
BRICK MACHINES, Patent PLANER SLOTTERS,
Hydraulic Presses, Centering Machines, Special Machinery, etc.

Office and Works, 226-236 ABBEY STREET,

CLEVELAND, OHIO.

IMPROVED BRICK MACHINERY.

The New QUAKER takes the lead in both character of work performed and price.

BRICK MAKERS SUPPLIES A SPECIALTY.

Send for Illustrated Catalogue.

Correspondence solicited.

FLETCHER & THOMAS, Indianapolis, Ind.

BRICK CARS.

Also Transfers, Turntables,
Kiln Doors, Grate Bars.

SEND FOR PRICE LIST.



THE WALWORTH RUN FOUNDRY & MFG. CO., Cleveland, O.

THE AKRON TOOL CO., AKRON, OHIO.

AKRON

Tubular Steel

WHEELBARROWS.

For all purposes. Also
MCNEIL'S PATENT



Before Placing Orders Get Our Prices.

Largest and Only Exclusive Wheelbarrow Manufacturers in the World.



EVERY VARIETY IN STOCK.
STEEL, IRON AND WOOD
WHEELS.

Best Michigan Hardwood Timber and First-Class Workmanship. Also manufacturers of Rope and Spiral Mouldings. Write for our catalogue and prices. Get the best and don't fear your competitors.

GRAND RAPIDS WHEELBARROW CO.

GRAND RAPIDS, MICH.

TRUCKS.



Mounted on both Iron and Rubber Wheels. Trucks made to order.
HEAVY MILL CASTORS, Iron or Rubber Wheels.

Write for prices. Catalogues free.

GEO. P. CLARK, Box A, Windsor Locks, Conn.

THE FRED. J. MEYERS MFG. CO.

MANUFACTURERS OF

WROUGHT-IRON FENCES, ROOF CRESTING, JAILS

AND ALL KINDS OF

BUILDING IRON WORK.

ALSO

Wire Bank and Office Railing, Wire Window Guards
AND EVERY DESCRIPTION OF WIRE WORK.

Send for illustrated catalogue.

OFFICE AND WORKS, 419, 421 and 423 MADISON STREET, COVINGTON, KY.

CHAMPION IRON CO.

KENTON, OHIO.

SPECIALTIES.—Iron Stairs and Jail Work, Builders' and Ornamental Iron Work and the only manufacturers of Malleable Iron Cresting guaranteed against breakage.

Largest Iron Fence and Railing Works in United States.

C. G. CUSHMAN, Pres. & Mgr.

JOHN RUD, Secy., V.-Pres. & Sup't.

A. J. COFFIN, Secy. & Treas.

THE CUSHMAN IRON CO.

Architectural and Ornamental Iron Works,

BRIDGE RAILINGS, FENCES, FIRE ESCAPES, BEAMS, CHANNELS, GIRDERS, &c.
Selling Agents for Engines, Boilers, Elevators, Wire Rope Tramways, Wire Rope,
Iron and Steel Siding and Roofing, Etc.

OFFICE—Commercial Bank Building.

WORKS—West End.

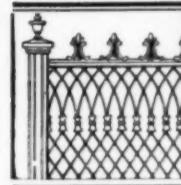
ROANOKE, VA.

WINDOW GUARDS

BANK AND OFFICE RAILING,

Wire and Iron Fencing, Roof Cresting, Stable Fittings, Wire Elevator
Enclosures, Fire Escapes and Structural Iron and Wire Work.

TOLEDO WIRE & IRON WORKS, Toledo, Ohio.



—THE LEADING HOUSE.—

H. WM. DOPP & SON.

MANUFACTURERS OF

Soap Makers' and Butchers' Machinery,

462 ELLICOTT STREET, BUFFALO, NEW YORK, U. S. A.

Swing Foot Lever Soap Presses, Nos. 1 and 2. Combination
Foot and Steam Power Soap Press. Improved Soap Remelting
Cotchers, either with or without 8 Horse Power Engine attached.
Seamless Steam Jacket Kettles. Steamed Jacketed Toilet Soap
Kettle, with Agitator (three different styles). Steam Jacketed Render-
ing and Refining Kettles. Steam Jacketed Kettles for Confectioners.

ILLUSTRATED AND DESCRIPTIVE CATALOGUE ON APPLICATION.

Improved Lard Dryer, Mixer and Cooler. Steam Jacketed
Vacuum Pans. Hotel Kettles for Boiling and Steaming in Hospitals,
Institutes, Barracks, Hotels, Asylums, &c., &c. Steam Jacketed Glue
Pot Heaters. Iron Soap Cutting Frames, with Adjustable Wires.
Soap Dies, for Stamping and Moulding the Soap. Hand Stamps,
Steam Traps, with Balanced Valve, &c.

MENTION THIS ADVERTISEMENT.

Waltham Emery Wheel Co. Manu-
facturers, Waltham, Mass.

By our various processes we can guarantee
satisfaction for the greatest variety of work.
EMERY WHEEL MACHINERY,
EMERY, CORUNDUM, Etc.
These wheels can be bought of our agents
or ordered direct.

IT'S TO Your Advantage

to correspond with
us regarding emery
wheels.

Grant Corundum Wheel Mfg. Co.

CHESTER, MASS.

Emery and Corundum Wheels.

Manufactured in the South for the first time.

Quality Unexcelled.

Prices Low as the Lowest.

Southern Trade Solicited.

AGENTS WANTED In all the large places of the South to handle
our goods. Write for terms, &c.

SOUTHERN EMERY WHEEL CO.

Charles Heaton, Pres.

Tallapoosa, Ga.

ALL GOODS OF OUR MAKE CONTAIN BRASS LABEL.

MICHIGAN EMERY WHEEL CO.

194 Catherine St., Detroit, Mich.

Solid Emery and Corundum Wheels

TO RUN WET OR DRY. SPECIAL SHAPES.

PERFECTION SAW CUMBERS.

SEND FOR PRICE LIST.

FOR SALE BY THE FOLLOWING AGENTS: The Robinson & Cary Co., St. Paul, Minn.;
The Curtis & Co. Mfg. Co., Chicago, Ill.; The Western Iron & Supply Co., St. Louis, Mo.; The
McIntosh Huntington Co., Cleveland, Ohio; The Hide, Leather & Belting Co., Indianapolis, Ind.;
The Machinist's Supply Co., Rochester, N. Y.

IRA DIMOCK, Pres.

Established 1867.

J. L. OTIS, Treas.

Northampton Emery Wheel Co.

MANUFACTURERS OF

Premium Solid Emery AND CORUNDUM WHEELS, AND ALL KINDS OF Emery Wheel Machinery.

LEEDS, MASS.

WESTERN BRANCH:
20 SOUTH CANAL STREET, CHICAGO, ILL.

BOOKS. NEWSPAPERS. CIRCULARS. FINE CUT WORK
Record Printing House, Cor. Exchange Pl.
FAMPHLETS. CATALOGUE. PRICE-LISTS. and Commerce St.
A SPECIALTY.

LOWELL MACHINE SHOP

LOWELL, MASS.

Cotton Machinery,

We Manufacture Everything Required for the Complete
Equipment of Cotton Mills.

Plans and Estimates Furnished on Application.

Correspondence Solicited.

SMITH, SAUNDERS & COLLINS,

Southern Agents for PETTEE MACHINE WORKS, Builders of
REVOLVING FLAT CARDING.Also Complete Systems of Cotton Mill Machinery, Steam and Electric Plants,
Transmission Machinery.

Careful attention given to plans.

NEWTON and CHARLOTTE, N. C.



LOOMS The SEA-CONNET MILLS, Fall River, wove in 301 days of 10 hours each, 14,329,219 yards of 6x6x4 goods on the 928 of our "NEW HIGH-SPEED LOOMS," a daily average of 53 3-10 yards per loom per day.
Cotton and Silk Weaving KILBURN, LINCOLN & CO., Fall River, Mass.

GEO. S. BROWN, President.

BARRINGTON J. KING, Secretary and Treasurer.

THE BROWN & KING SUPPLY CO.

MANUFACTURERS AND DEALERS IN

Cotton and Woolen Mill Supplies

General Supplies for Railroads,
Machine Shops, Quarries, &c.

Wrought Iron Pipe, Fittings and Brass Goods. ATLANTA, GA.

WATERS & GARLAND,

LOUISVILLE, KY.

Southwestern Depot for

HOYT'S Short Lap Belt.
Dodge Wood PulleysPOST'S Zero Metal.
Glover's Belt Hooks.

Coupes' Excelsior Raw-Hide Lace. Write for Prices.

CARVER COTTON GIN CO.

EAST BRIDGEWATER, MASS.

The famous
Carver Gin
has been
made by us
84 years.

Latest Improved

COTTON SEED LINTER

Nine-tenths of the Linters
used in the United States
are of our make.

We also make SHOE MACHINERY

Cotton Seed Oil Mills

We are making Various Sizes, from the PLANTATION MILLS of five tons to the LARGE CITY MILL of fifty tons per day. Our Mills have all the Latest Modern Improvements in Machinery, and produce the very best results.

Hydraulic Cotton Presses SIMPLE, COMPACT AND VERY POWERFUL. Worked either by Hand or Steam-power. Not liable to get out of order and very durable. They are the BEST BALEING PRESS made for Cotton, Wool, Rags, &c.

Threshers and Cleaners For WHEAT, OATS and RICE. The Simplest, Cheapest and Best Made.

Information furnished upon application to

THE CARDWELL MACHINE COMPANY, RICHMOND, VA.

NATIONAL COTTON GIN

A New Invention that is Commanding
Widespread Attention

Its advantages over every gin in the market are so many that we cannot enumerate them here.

ADDRESS

THE NATIONAL COTTON GIN CO.

85 Hanover Street, BOSTON, MASS.

SEND FOR CIRCULAR NOW. A. W. MANN, Manager

VENTILATION

HEATING, COOLING,
PURIFYING OF WORK ROOMS
A SPECIALTY.

Manufacturers of Exhaust Fans, Blowers, Ventilators, Galvanized Iron Pipes, Tin Cylinders, Drying Cans, Roving Cans, etc.

NEW ENGLAND VENTILATING & HEATING CO.
Send for Catalogue.

PROVIDENCE, R. I.



FRENCH BURR MILLS.

WE guarantee these Mills to be better made, to do faster and finer work, to have more good points than any other mill made. Our end motion silent shoe feed is perfection.

Address,

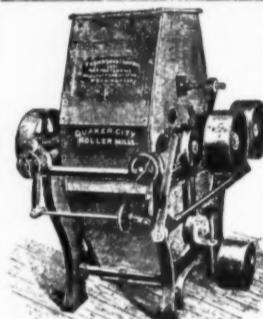
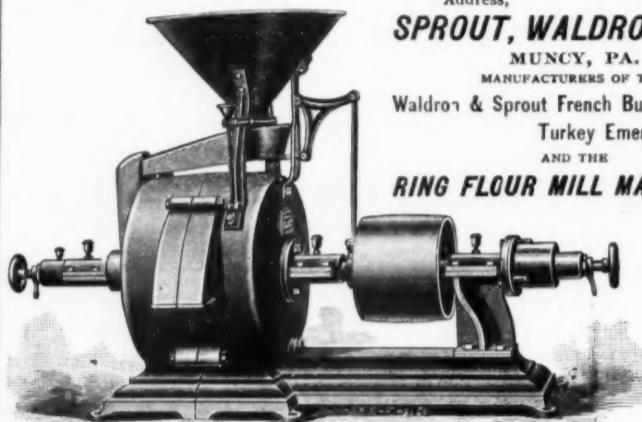
SPROUT, WALDRON & CO.

MUNCY, PA.

MANUFACTURERS OF THE

Waldron & Sprout French Burr and
Turkey Emery Roll Mills
AND THE

RING FLOUR MILL MACHINERY.



Quaker City Roller Mills

AND ROCKING FEEDER COMBINED.

Two Roller Mills, Smooth and Corrugated Rolls,
Four Roller Mills, Corn and Cobb Mills and Breakers,
Quaker City Aspirators. Round Reels and Round Scalpers.

The Trimmer Smut Machine,

"The great rough on fuzz."

THOMPSON & CAMPBELL,
1030 Germantown Ave., Philadelphia, Pa.

LINK-BELT

ENGINEERING CO
NICETOWN
PHILA.
49 DEY ST.
NEW YORK.

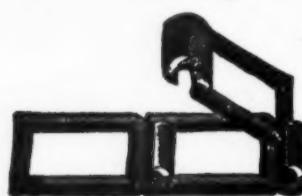
Elevators, Conveyors, Manila Rope Power Transmission Machinery, Ewart Detachable Link Belting, Dodge Chain, Howe Chain, &c.

Western Connection: LINK BELT MACHINERY CO., Chicago.

JEFFREY CHAIN BELTING

Also Manufacture a SPECIAL LINE OF

Malleable, Roller, Steel, Wrought & Special Chains

SEND FOR
REDUCED
PRICE LIST.Elevating
AND
Conveying
Machinery

THE JEFFREY MFG. CO., Columbus, Ohio.

Chicago Branch, 48 S. Canal St. New York Branch, 163 Washington St.

AMERICAN SUPPLY CO.

Formerly MYRON, FISH & CO., of Valley Falls, R. I., and KENDRICK, LOOM HARNESS CO., of Providence, R. I.

MANUFACTURERS OF

LOOM HARNESS AND REEDS

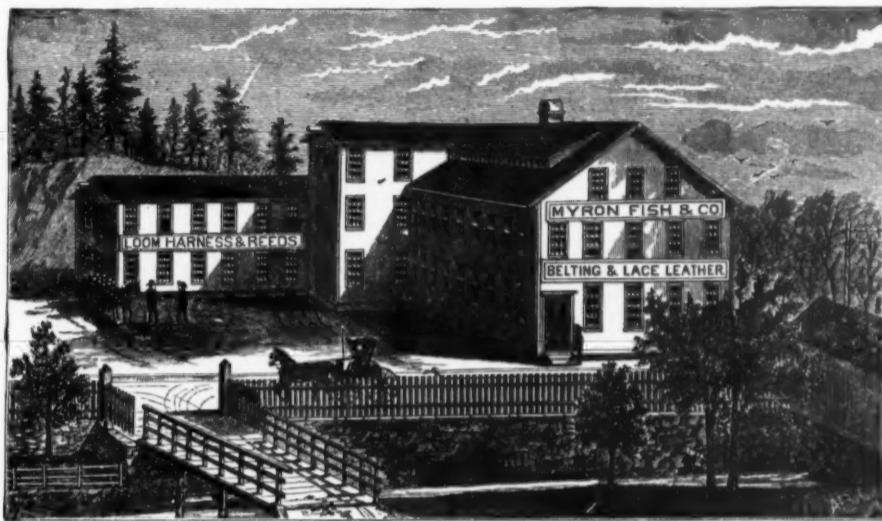
OAK BELTING, LACE AND PICKER LEATHER,

And Dealers in Supplies for Cotton, Woolen and Silk Mills.

Agents for JOSEPH NOONE'S SONS.
Roller, Slasher and Clearing Cloths.Agents for —
Roddick's Patent Improved Oil Cans.

Calf, Sheep and Lamb Roller Skins and

ROLL COVERS' TOOLS.



SPECIAL NOTICE TO WORSTED AND SILK MILLS.—We manufacture both Worsted and Cotton Machine-Knit Mail Harness for Weaving Fine Worsted and Silk Goods. Also a full line of Supplies for Jacquard Looms.

Office and Salesrooms, 10 Exchange Place, PROVIDENCE, R. I. FACTORIES: PROVIDENCE and VALLEY FALLS, R. I.

A. D. LOCKWOOD, Pres't.

JOHN KENDRICK, V.-Pres't.

MYRON FISH, Treas.

JOHN A. CARTER, Secy.

JOSEPH H. KENDRICK, Gen. Agent.

Conveying, Elevating and Power Transmission Machinery



"SOUTH BEND"
Wood Split Pulleys,
With Iron Hubs
and Iron Bushings.
Will Not Slip on
Shaft. No Danger
From Fire.

For Cotton Seed Oil Mills, Phosphate and Fertilizer Works, Gineries, Starch Works,

Sugar Refineries, Cement Works, Rice Mills, Grain Elevators, Flour Mills, Etc.

H. W. CALDWELL & SON COMPANY,
GENERAL MACHINISTS.

127, 129, 131, 133 West Washington Street,

CHICAGO, ILL.

CALDWELL STEEL CONVEYOR,
Automatic Power Grain Shovels.

AVERY PLAIN
AND CALDWELL-AVERY
CORRUGATED
SEAMLESS STEEL
ELEVATOR
BUCKETS.



S PROCKET WHEELS, Link Belting, Cotton, Rubber and Leather Belting, Elevator Boots, Bolts and
Buckets, Spouts, Gearing, Friction and Jaw Clutches, Hangers, Shafting, Pillow Blocks, Iron Pulleys,
Set Collars, Take-up Boxes, Turn Heads, Perforated Metal, Wire Cloth, Etc.



W. J. CLARK & CO. Salem, Ohio,

MANUFACTURERS OF

Elevating and Conveying Specialties

SOLE MANUFACTURERS OF THE

"Salem" Elevator Bucket

For Mill and Elevator Work, Ear Corn, Corn and Cobs,
Ores, Coal, Broken Stone, etc.

Send 5 cents (stamps) for postage on Sample Salem Bucket and Illustrated Catalogue.



WELLER MFG. CO.

118 North Avenue,
CHICAGO.

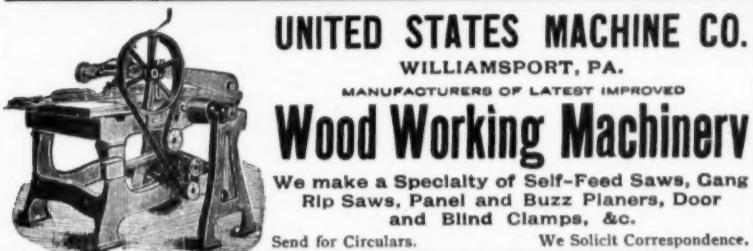
Our Specialties:

Steel Conveyors,
Steel Buckets,
Elevator Boots,
Flexible Boots,
Turn Heads,
Hopper Bottoms,
Power Shovels,
Car Pullers,
Belt Conveyors,
Friction Clutches,
Pulleys, Shafting, &c.

Send us a list of what you want, get our prices,
we do the rest.



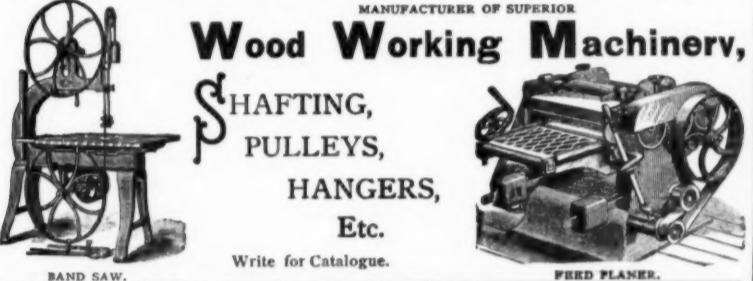
WILLIAMSPORT MACHINE CO.
WEST THIRD & WEST STS. WILLIAMSPORT, PA. U.S.A.
WOOD CUTTING MACHINERY FOR
PLANING MILLS, SASH DOOR AND BLIND FACTORIES,
ALSO FOR CARRIAGE AND WAGON FACTORIES, SPECIAL
MACHINES USED IN THE MANUFACTURE OF FURNITURE.
SEND FOR 96 PAGE ILLUSTRATED CATALOGUE.



UNITED STATES MACHINE CO.
WILLIAMSPORT, PA.
MANUFACTURERS OF LATEST IMPROVED
Wood Working Machinery

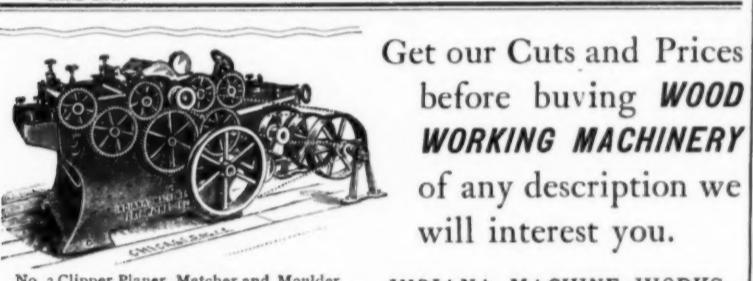
We make a Specialty of Self-Feed Saws, Gang Rip Saws, Panel and Buzz Planers, Door and Blind Clamps, &c.
Send for Circulars. We Solicit Correspondence.

P. PRYIBIL, 508 to 520 W. 41st Street, NEW YORK CITY,
MANUFACTURER OF SUPERIOR



Wood Working Machinery,
SHAFTING,
PULLEYS,
HANGERS,
Etc.

Write for Catalogue.



No. 2 Clipper Planer, Matcher and Moulder.

Get our Cuts and Prices before buying **WOOD WORKING MACHINERY** of any description we will interest you.

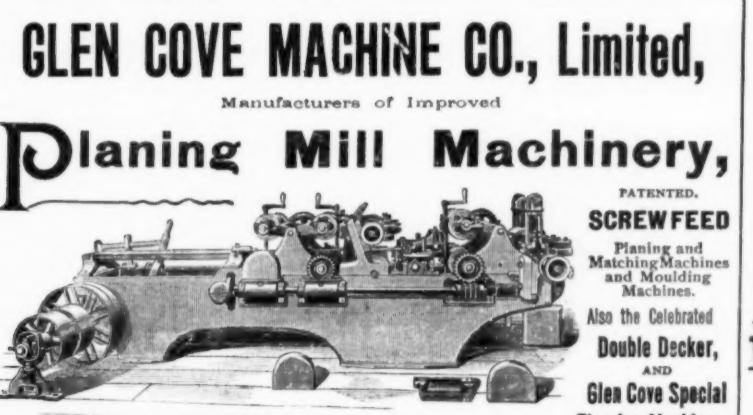
INDIANA MACHINE WORKS,
Fort Wayne, Ind.



Complete Outfits for Planing Mills, Sash, Door and Blind Shops, Furniture Factories, &c.

H. B. SMITH MACHINE CO.
SMITHVILLE, N. J.
BOSTON STORE,
191 and 193 High St. (Fort Hill Square.)
NEW YORK STORE,
121 Liberty Street.

SEND FOR OUR
NEW CATALOGUE.
146 Pages Free.



GLEN COVE MACHINE CO., Limited,
Manufacturers of Improved
Planing Mill Machinery,

PATENTED.
SCREW FEED
Planing and Matching Machines and Moulding Machines.
Also the Celebrated Double Decker, AND Glen Cove Special Flooring Machines.

BACK VIEW OF SCREW-FEED PLANING AND MATCHING MACHINE.
Office and Works: { 24, 26, 28, 30, 32 and 34 CLAY STREET, BROOKLYN, N. Y.



WOOD WORKING MACHINERY
OF THE VERY LATEST AND MOST IMPROVED DESIGN.

Complete outfits for Planing Mill: Sash, Door and Blind, and Furniture Factories; Agricultural Implement, Car and Railroad, Carriage, Wagon and Wheel Shops.

The Bentel & Margedant Co. HAMILTON, OHIO.

WOODWORKING MACHINERY

Planers, Band Saws and Resaws, Moulders, SAW BENCHES, Etc., Etc.
Built to Gauge, Every Part Numbered and Interchangeable.

THE STANDARD.
THE JOHN A. WHITE CO.
DOVER, N. H.

Write for Catalogue.



IF YOU LACK STEAM WRITE US.

Good fuel made of what you throw away.

If you will mention this paper we will tell you of all the other good things it does.

MITTS & MERRILL
973 Water St.,
E. SAGINAW, MICH.

This is a **HOG.** It Chews Slabs.



SAWING MACHINERY
BEACH'S PATENT SCROLL SAWING
Machines. More than 5,000 in use.
You can stop, change the saw and get to work in 4 seconds.
ALSO Steel Saw Arbors, Slitting Saw Tables, Combination Saw Benches, Combined Rip and Cut-off Saws. The Best Double and Single Cut-off Saws Made on Earth. Combined Square and Bevel Saw Gauges.

You can't afford to buy any other. Send for catalogue and prices. Address (naming street)
H. L. BEACH, 110 Rose Street, Montrose, Pa.

THE ARTISTIC WOOD WORKS, at LURAY, VA. Near the Famous Caverns.

Operate the great Polyonal Machinery patented by the N. L. & T. Co.
THE MOST EXTENSIVE WOOD TURNING WORKS IN THE SOUTH.
Execute Unique Designs from $\frac{1}{4}$ inch square to 10 inches square and 60 feet long. High Finish. Perfect Stock. Inimitable Execution. All kinds domestic thoroughly seasoned Hardwoods in unlimited supply. Capacity from 5,000 to 20,000 daily. Will execute from "your or our" designs. Address for catalogue, etc.

THE LURAY ARTISTIC WOOD CO., Luray, Va.

THE WARD HOOP MACHINERY.

CUTTERS, PLANERS, COILERS, POINTERS AND LAPERS.

Send for Circulars and Prices. **FRONTIER IRON WORKS**, Manufacturers, DETROIT, MICH.**S A W S**

Send for Pamphlet on the Band Saw. FREE.

Send for Pamphlet on the Band Saw. FREE.

S A W S

Send for Pamphlet on the Band Saw. FREE.

Send for 1892-1893 Sawyer's Hand Book. FREE.

EMERSON SAW WORKS
Manufacturers of Circular and Band Saws. Our Specialties are Tempered Tipped Saws. Hand Book for Circular and Band Saw Book, sent free to any part of the world, on receipt of money and express.EMERSON, SMITH & CO., Limited,
BEAVER FALLS, PA., U.S.A.**R. M. WHITNEY**
MANUFACTURER OF
BLACK BIRCH HUBS.

OLEAN, N. Y., U. S. A.

These Hubs are made in sizes from 6x8 to 16x18 inches, and are especially adapted to dry climates. Send for Circular and Prices.

The Otis Elevator has been the standard for 36 years, and is in use in the principal cities of the world.

OTIS BROTHERS & CO.,

38 Park Row, New York.

Send for a circular of the Otis Electric Pump. Can be attached to any electric line.

Morse Elevator Works.
MORSE, WILLIAMS & CO.
ELECTRIC, HYDRAULIC,
BELT AND HAND-POWER,
PASSENGER AND FREIGHT
ELEVATORS.

WORKS—Frankford Avenue, Willey and Shackamaxon Streets,
PHILADELPHIA.

OFFICES—{ 1105 Frankford Avenue, Philadelphia.
108 Liberty Street, New York.
38 Lincoln Street, Boston.
1118 E Street N. W., Washington, D. C.

HOWARD FOUNDRY & MACHINE WORKS,
ESTABLISHED 1851.
PASSENGER AND FREIGHT **ELEVATORS**
GENERAL MACHINE WORK,
17 South Eighteenth Street,
PHILADELPHIA, PA.

THE ENTERPRISE SAFETY ELEVATOR CO.
BUILDERS OF
PASSENGER AND FREIGHT
ELEVATORS.

CHATTANOOGA, TENN.
Offices, 117 Market Street.
The only elevator works in the South.

Works, 118 Broad Street.
Send for catalogue.

THE GRAVES ELEVATORS
2,300 PASSENGER AND FREIGHT IN USE.
THE GRAVES ELEVATOR CO., Main Office and Works, Rochester, N. Y.
Branches at NEW YORK, BOSTON, DETROIT, ST. LOUIS and ATLANTA, GA.

IF you wish to buy or sell anything, you will find that your wants can be best supplied by the MANUFACTURERS' RECORD, for it is our mission to bring buyers and sellers together to their mutual advantage. If you are building a mill, opening a mine, equipping a factory or establishing any kind of an industrial enterprise, you probably need machinery and supplies. If you will kindly let us know what you require, we will place you in communication with the leading manufacturers of and dealers in the goods you require, and thus enable you to make an advantageous selection.

If you have land to sell, if you need money for your business, if you desire to reach capitalists or investors, you can do it in no way so well as by an advertisement in the MANUFACTURERS' RECORD.

If you are a manufacturer of machinery, supplies or specialties, and wish to reach Southern trade, you will find this end best accomplished by advertising in the MANUFACTURERS' RECORD for the very reasons outlined above. Every intending purchaser of such goods in the South consults our advertising pages or advises us of his wants before placing an order.

We represent both buyers and sellers, and the value of our service to each can best be understood and appreciated by trial.

Write to us; postage is cheap.

MANUFACTURERS' RECORD,

Baltimore, Md.



**Steam
Riding Gallery.
The Delight of Young and Old.**

For particulars about the handsomest and best machine made, write

**ARMITAGE-HERSCHELL CO.
Manufacturers,
TONAWANDA, N.Y.**

THE GALLOPING HORSE STEAM CAROUSEL,

—OR—

Merry-Go-Round

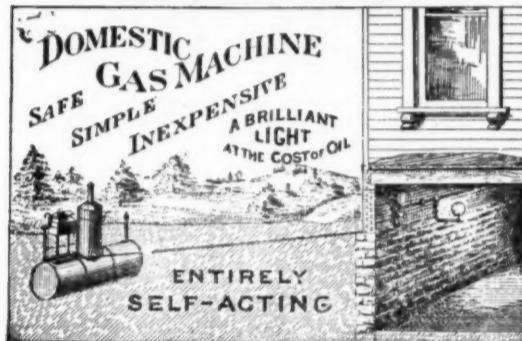


Having had several years' experience in manufacturing these machines, we are prepared to furnish a machine, which for beauty, durability and completeness cannot be surpassed. Machines constantly on hand. All orders filled promptly. Write for catalogue and prices to

**OWEN & MARGESON,
Hornellsville, N.Y.**

NEW YORK DOMESTIC GAS MACHINE CO., 45 Dey Street

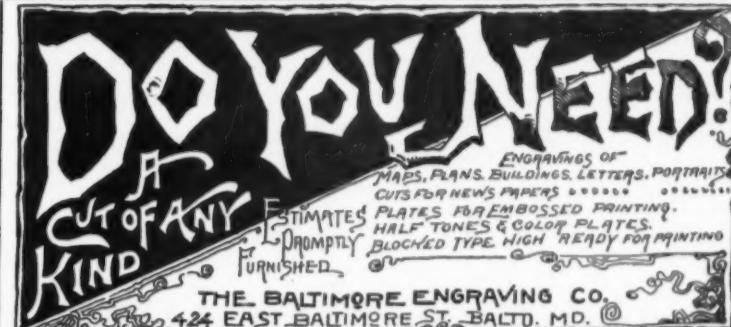
Sole Manufacturers of THE IMPROVED



Requires no Pumping, no Winding, no Adjusting, no Water Wheel, Water Jet, or other motive power. There are no Valves to be packed or manipulated, no Automatic Valve to wear out or become clogged. In short, it is the Acme of Simplicity and Perfection.

Every reader of this may enjoy the luxury of elegant Gas Light easily, conveniently and cheaply, and do away forever with the troublesome kerosene lamps.

Price of the Domestic Gas Machine about one-half of any other. They are packed and shipped to any part of the United States, or the world, in perfect working order.



**THE
PREMIER FLOUR
OF AMERICA.
Patapsco Flouring Mills.**

ESTABLISHED 1774.

Perfection in Flour.

Patapsco Superlative Patent,

THE PREMIER FLOUR OF AMERICA.

Is unsurpassed for

BREAD, BISCUIT OR PASTRY.



ASK YOUR GROCER FOR

Patapsco Superlative Patent,

Medora, High-Grade Winter Patent,

Patapsco Family Patent,

Orange Grove Extra,

Baldwin Family.

C. A. GAMBRILL MFG. CO.

Office. 214 Commerce Street, Baltimore, Md.



Issues Policies of Insurance after Careful Inspection of the Boilers, covering Loss or Damage to Property, and Loss of Life and Personal Injury Arising from Steam Boiler Explosions.

Full information concerning the plan of the Company's operations can be obtained at the COMPANY'S OFFICE, Hartford, Conn., or at any Agency.

J. M. ALLEN, President.

J. E. PIERCE, Secretary.

W. B. FRANKLIN, Vice-President.

F. B. ALLEN, Second Vice-President.

BOARD OF DIRECTORS:
J. M. ALLEN, President.
FRANK W. CHENEY, Treas. Cheney Bros. Silk Mfg. Co.
CHARLES M. BEACH, of Beach & Co.
DR. J. C. COOPER, of Cooper & Son Company.
RICHARD W. H. JARVIS, Pres. Colt's Fire Arms Mfg. Co.
THOMAS O. ENDERS, Pres. of the United States Bank.
LEVERETT BRAINARD, of The Case, Lockwood & Brainard Co.
GEN. WM. R. FRANKLIN, late Vice-Prest. Colt's Patent Fire Arms Mfg. Co.
C. C. KIMBALL, Prest. Smyth Mfg. Co., Hartford, Conn.

Maryland Department—LAWFORD & MCKIM, Gen. Agents, 22 S. Holliday St., Baltimore.

**Richmond & Danville R. R. Co.
(PIEDMONT AIR LINE.)**

THE SHORT AND DIRECT LINE FROM

WASHINGTON, D. C., AND RICHMOND, VA.

TO ATLANTA, AUGUSTA, COLUMBIA, ASHEVILLE, RALEIGH, GREENSBORO, SALISBURY, GOLDSBORO, BIRMINGHAM, MONTGOMERY, VICKSBURG, SHREVEPORT, MOBILE, NEW ORLEANS, TEXAS, MEXICO and CALIFORNIA, and the SOUTH and SOUTHWEST.

Washington and Southwestern Limited Train Daily between Washington and Atlanta Without Change. Two other through trains daily.

Pullman's Palace Buffet and Drawing-Room Sleeping Cars

Without change to Atlanta, Montgomery, New Orleans, Augusta, etc.

For maps, time-tables, rates of passage, freight, etc., apply to nearest station agent of the Piedmont Air Line, or to any Railroad Agent of principal lines North or South.

W. H. GREEN, General Manager.

W. A. TURK, General Passenger Agent.

SOL. HAAS, Traffic Manager.

WESTERN MARYLAND RAILROAD.

Short Freight Line to Westminster, Frederick, Taneytown and Hagerstown, Md.; Waynesboro, Chambersburg, Shippensburg, Hanover, Gettysburg and Carlisle, Pa.; also points on the Frederick Division P. R. R., Gettysburg & Harrisburg R. R., Harrisburg & Potomac R. R., Shenandoah Valley R. R., Norfolk & Western R. R. and connections, also route of

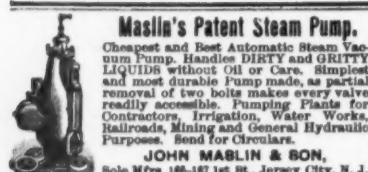
GREAT SOUTHERN DESPATCH.

All-rail Fast Freight Line for Southern and Southwestern points, via Bristol, Tenn. Freight received in any quantity at Hillen Station, and in carloads at Fulton, Canton and Jackson's Wharf. Shippers desiring information will be called on. Send postal card with address to

B. H. GRISWOLD, General Freight Agent,
HILLEN STATION, BALTIMORE, MD.



BRANCHES.
CHICAGO, NEW YORK,
332 DEARBORN ST 68 BEEKMAN ST
A. & W. INK USED ON —
— THIS PUBLICATION.



Maslin's Patent Steam Pump.
Cheapest and Best Automatic Steam Vacuum Pump. Handles DIRTY and GRIFFY LIQUIDS without Oil or Cast Iron. Simplest and most reliable pump made, as each removal of two bolts makes every valve readily accessible. Pumping Plants for Contractors, Irrigation, Water Works, Railroads, Mining and General Hydraulic Purposes. Send for Circulars.

JOHN MASLIN & SON,
Sole Mfrs. 168-187 1st St., Jersey City, N. J.



VAN DUZEN'S Steam JET PUMP
PUMPS ANY KIND OF LIQUID.
Does not clog, freeze or get out of order.
Always ready. All brass. Every Pump
Guaranteed. 10 sizes. Capacity
100 to 10,000 gallons per
hour. Prices \$7 and upwards.
For full information write to
The VAN DUZEN & TIFCO.
(PUMP DEPARTMENT)
CINCINNATI, O.

If you want the BEST, MOST EFFICIENT and DURABLE

CENTRIFUGAL PUMP



IN THE MARKET, REMEMBER
THAT THE
Original Baldwinsville
Centrifugal Pumps
ARE MANUFACTURED ONLY BY
BOGGS & CLARKE - SYRACUSE, N. Y.
Write for Catalogue and Prices.

WELL MACHINERY.

Send for Illustrated Catalogue,
showing Well Augers, Rock Drills,
Hydraulic and Jetting Machinery,
Wind Mills, etc. Have been tested
for years, and fully warranted.
The Pech Mfg. Co., IOWA,
BIOUX CITY, IOWA.
68 S. Canal St., CHICAGO, ILL.

WELL MACHINERY
Rust's New Style.
Best in Market.
Quick work and no failures
Send for catalogue.
RUST WELL WORKS,
ITHACA, N. Y.

WELL MACHINERY
Rust's New Style.
Best in Market.
Quick work and no failures
Send for catalogue.
RUST WELL WORKS,
ITHACA, N. Y.

OIL WELL SUPPLY COMPANY

OWNERS OF THE

ELBA IRON WORKS, CONTINENTAL TUBE WORKS,
and Six other Manufactories Making

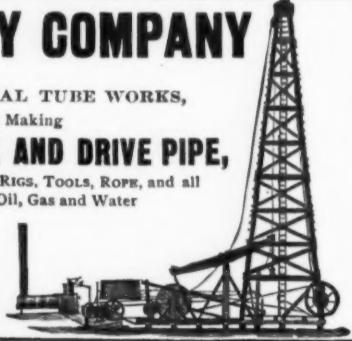
WROUGHT IRON STEAM, LINE AND DRIVE PIPE,

TUBING, CASING, BOILERS, ENGINES, DRILLING RIGS, TOOLS, ROPE, and all
other appliances necessary for drilling Oil, Gas and Water

ARTESIAN WELLS.

PITTSBURGH, OIL CITY and
BRADFORD, PA.

32 CORTLANDT STREET, NEW YORK.



The CRANDALL PACKING CO.

MAIN OFFICE AND WORKS, PALMYRA, NEW YORK.
1932 North Broadway, St. Louis, Mo.
OTHER OFFICES: New York, 136 Liberty Street.
Chicago, 51 S. Canal Street.

Our Improved Packings for Steam, Water and Ammonia
OUTLAST ALL OTHERS, because the life and elasticity
of the rubber have not been impaired by the chemical action of
boiling oil.

We Hold the Patent On These Packings.
Beware of Infringements and Cooked Imitations.

STEAM PUMPS

For Non-Firing

ARTESIAN WELLS

ALSO FOR
Artesian Wells

From which a large amount of
water is to be pumped.

For Railroads, Ice Factories and
Village Water Works.

Guaranteed to lift from two
to three times as much
water from same
well and
same steam pressure as any
other pump now
in the market.

Also Manf's. of Direct Single-
Action Steam Pumps.

Give depth and diameter of
your well and amount of
water wanted, and
write for esti-
mates and
prices.

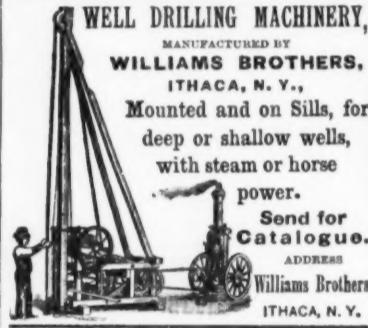
Downie's Bros. & Nevins,
Limited

NEW BRIGHTON, PA.
Sole Proprietors and Manufac-
turers.



LIGHTNING WELL-SINKING MACHINERY MANUFACTURERS

Hydraulic, Jetting, Revolving, Artesian,
Diamond Prospecting Tools, Engines, Boilers,
Wind Mills, Pumps. Encyclopedia, 1,000
engravings, Earth's Strata, Determina-
tion of quality water; mailed, 25c.
The American Well Works,
11 & 12 S. Canal
St., Chicago, Ill.
Dallas, Texas.



WELL DRILLING MACHINERY,

MANUFACTURED BY
WILLIAMS BROTHERS,
ITHACA, N. Y.,

Mounted and on Sills, for
deep or shallow wells,
with steam or horse
power.

Send for
Catalogue.

ADDRESS
Williams Brothers
ITHACA, N. Y.

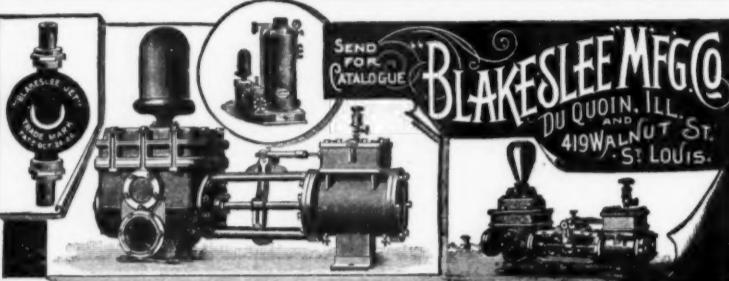
If you wish to keep posted on the progress
of the South, read the MANUFACTURERS'
RECORD. Price \$4.00 a year.

DEAN BROS' STEAM PUMP WORKS.



INDIANAPOLIS, IND.

SEND FOR CATALOGUE
AND PRICES.



BLAKESLEE MFG CO
DU QUOIN, ILL.
419 WALNUT ST.
ST. LOUIS.



THE DEMING COMPANY,
MANUFACTURERS OF
PUMPS
FOR POWER AND WINDMILL USE.

ARTESIAN WELL PUMPS & CYLINDERS A SPECIALTY.
SALEM, OHIO.

AGENCIES
HENRION & HUBBELL, CHICAGO, ILL.
CRANE COMPANY, KANSAS CITY, MO.



SEND FOR CATALOGUE

OVER 20,000

BEST AND CHEAPEST

STEAM PUMP KNOWN

FOR ALL PURPOSES

PULSOMETER STEAM PUMP CO. SOLE OWNERS - NEW YORK.

(COPYRIGHTED 1891)



THE LAIDLAW & DUNN CO.

STANDARD COMPLEX PUMP AND BOILER COMB. AER.

STANDARD COMPOUND STEAM PUMP.

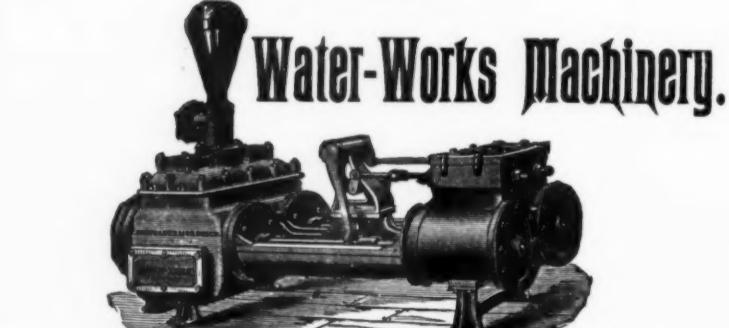
STANDARD DUPLEX STEAM PUMP.

HERO BOILER FEEDER.

197 & 199 SO. CANAL ST.
CHICAGO, ILL.

The Improved Smith & Vaile SINGLE, DUPLEX AND COMPOUND Steam Pumps

FOR EVERY DUTY.



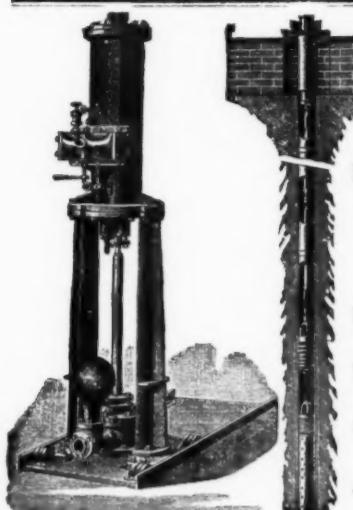
The SMITH & VAILE CO.

DAYTON, OHIO, and NEW YORK,

112 LIBERTY STREET.

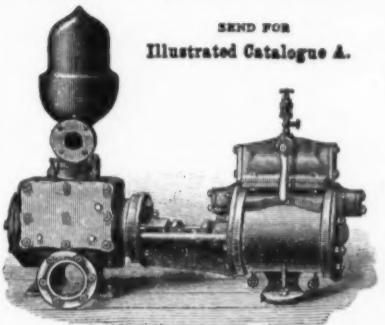
SOUTHERN AGENTS:

D. A. TOMPKINS CO. - - - - - CHARLOTTE, N. C., and ATLANTA, GA.
MCARDLE & SINCLAIR, 50 Baronne Street, NEW ORLEANS, LA.

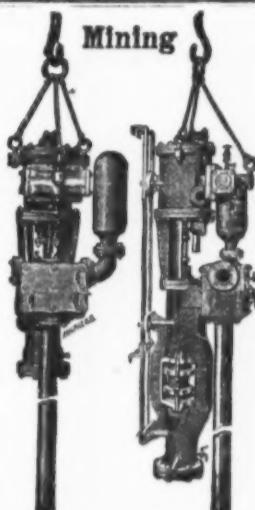


PUMPS FOR
BOILER-FEEDING,
MINES,
REFINERIES,
BREWERIES,
TANNERIES,
IRRIGATING,
FIRE PURPOSES,
RAILROADS and
FILLING TANKS.
CRANK and
FLY WHEEL
And VACUUM
PUMPS.

SEND FOR
Illustrated Catalogue A.



SIMPLE,
COMPACT,
DURABLE,
EFFICIENT.
ADAPTED TO
ALL PURPOSES.
NO OUTSIDE
VALVE GEAR.

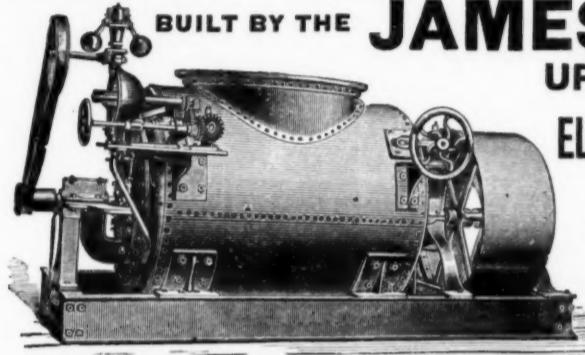


The A. S. Cameron Steam Pump Works,

NEW YORK. Piston Pattern. Plunger Pattern.

JAMES LEFFEL WATER WHEELS

BUILT BY THE JAMES LEFFEL & CO.
UPRIGHT AND HORIZONTAL
FOR
ELECTRIC, MINING & MANUFACTURING
PLANTS.

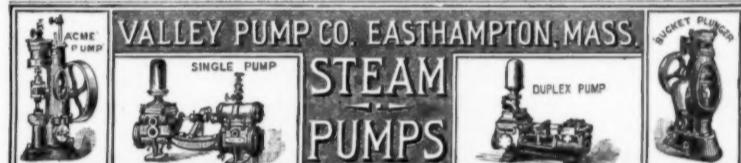


Easy working gates. High percentage and even speed at full and part capacity. Equally adapted to high and low heads. Large number of sizes and styles. All parts can be furnished in duplicate. Send for fine pamphlet to
THE JAMES LEFFEL & CO.
SPRINGFIELD, OHIO.

OR 11 LIBERTY ST., NEW YORK CITY.



Subscribe to the MANUFACTURERS' RECORD
Price \$1.00 a year, or six months for \$2.00.



PUMPS

THE JOHN H. McCOWAN CO.

42, 44, 46 Central Ave., CINCINNATI, O. | Branch House, 1425 E. Main St., RICHMOND, VA.

QUEEN CITY SUPPLY CO., PUGH, PUGH & CO.
PROPRIETORS.
Nos. 161, 163 & 165 West Pearl Street, Cincinnati, Ohio.

Factory, Machine Shop and Mill Supplies.
Agent for R. F. Sturtevant Co., Blowers and Exhausts; Boston Belting Co., Rubber Goods of all kinds; Jewell Belting Co., Leather Belt; Jno. A. Roeblings' Sons, Wire Rope; Grant Corundum Wheel Co., Emery Wheels; Magnolia Metal Co., Magnolia Babbitt Metal.

The GRINNELL AUTOMATIC SPRINKLER

Recently Modified. Especially Constructed to Resist the Effects of Adhesive Corrosion or Sediment, both Inside and Outside the Sprinkler.

FOR INFORMATION AND PROPOSALS APPLY TO
PROVIDENCE STEAM & GAS PIPE CO., Providence, R. I.
BOSTON OFFICE, 173 Devonshire Street. CHICAGO OFFICE, 115 Monroe Street.

AUTOMATIC FIRE ALARM & EXTINGUISHER CO. (Limited), 415 BROADWAY, NEW YORK. PHILADELPHIA OFFICE, 49 S. Fourth Street.



H. Mueller Mfg. Co.
MANUFACTURERS OF

WATER & GAS
SPECIALTIES

Office & Manufactory,
220-222 E. MAIN ST.
DECatur, ILL.

OUR GOODS CAN BE PURCHASED FROM ANY
PLUMBING, WATER OR GAS WORKS SUPPLY HOUSE.

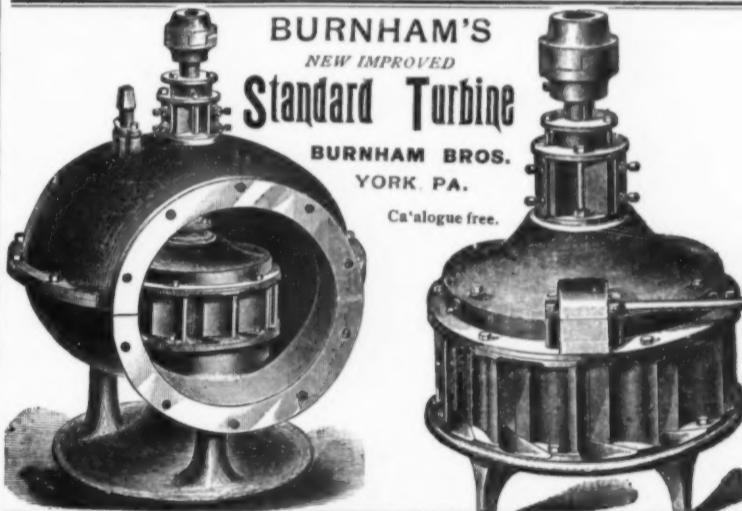
Improved Success Turbine ON VERTICAL AND HORIZONTAL SHAFTS.



Is in use all over the nation, working under heads from 4 to 100 feet driving Electric Light Plants, Cotton, Woolen, Pulp, Paper, Flour and Saw Mills.

For STRENGTH, DURABILITY and HIGH EFFICIENCY at all stages of gate IT HAS NO EQUAL. State kind of machinery to be driven, head or fall under which wheel will work, and send for illustrated catalogue and prices. Cut gearing and machinery for transmitting heavy power a specialty.

S. MORGAN SMITH. - York, Pa.



LUDLOW VALVE MFG. CO.

Office and Works, 938 to 954 River St., and 67 to 83 Vail Ave., TROY, N. Y.

VALVES

Double and Single Gate, $\frac{1}{2}$ inch to 48 inch; outside and inside screws, indicators, etc., for Gas, Water, Steam, Oil.

SEND FOR CIRCULAR.



ALSO FIRE HYDRANTS; YARD AND WASH HYDRANTS, CHECK AND FOOT VALVES.

ROCKY MOUNT,

NORTH CAROLINA,

On the Atlantic Coast Line, 125 miles South of Richmond, Va. Offers the most flattering opportunities for business and investment of any town in the South. During the past year the

POPULATION increased from 1,194 to 2,500; 185 new dwellings and stores, and seven new Tobacco Leaf Houses have been built. All are occupied and the demand is not half filled.

ROCKY MOUNT COTTON MILLS are increasing their capacity from 15,000 to 30,000 spindles, and in the fall will employ 300 additional hands.

TOBACCO BUSINESS of the town has more than doubled in capacity. There are three large warehouses and fourteen leaf houses now in operation.

ATLANTIC COAST LINE RAILROAD are building their main yards and shops here. Several buildings are under roof, miles of track laid, coal shutes, etc., erected; 200 new hands will be employed this fall; next year three times that number. All this has been accomplished in one year.

MERCHANTS AND MANUFACTURERS—Rocky Mount is the most promising point for business in the whole South.

INVESTORS—Look at Rocky Mount, the return will be large, sure and quick. For information write

Rocky Mount Improvement and Manufacturing Co.

Rocky Mount, North Carolina.

J. H. LOGAN, General Manager.

ARRINGTON & ARRINGTON, General Agents.

J. WM. MIDDENDORF.

Members Baltimore Stock Exchange.

WM. B. OLIVER.

MIDDENDORF, OLIVER & CO. BANKERS AND BROKERS,

No. 213 E. German Street,

[KEYSER BUILDING.]

Baltimore, Md.

Stocks and Bonds Bought and Sold on Commission. Special attention given to Municipal and other Investment Loans. Dealers in Foreign Exchange. Drafts on Europe and Letters of Credit furnished.

L. Breckinridge Cabell,

53 Broadway, NEW YORK.

Room 17.

Lands, Securities and Industrial Enterprises; Total Issues of Corporate, Municipal and County Bonds Taken; Municipal Debts Consolidated and Refunded at lower rates; Railroads Built and Equipped; Electric Roads Built and Equipped; Street Railroads using horse-power Changed to Electric Roads.

THE SOUTH BALTIMORE HARBOR & IMPROVEMENT COMPANY.

THE SOUTH BALTIMORE HARBOR & IMPROVEMENT CO. is the owner of about 1,500 acres of land and five miles of water front adjoining the city of Baltimore, on the south side of the Patapsco river.

LOCATION.

The land is beautifully located, running from the water's edge, gradually to a height of about 200 feet; is free from malarial influences, and is generally considered one of the healthiest locations adjoining the city.

WATER FRONT.

The center of the water front consists of the famous land-bound harbor of Curtis Bay, with an average depth of water of 25 feet.

MANUFACTORIES.

The advantages of this locality for manufacturing purposes cannot be over-estimated. The best proof of this assertion is that capitalists have within the last few years selected it in preference for large manufacturing enterprises, such as a Sugar Refinery, Barrel Factory, Car Works, Foundry, Nut and Bolt Manufactury, the Ryan-McDonald Machine Shops, which were removed from Waterloo, N. Y.; the Beckwith Rolling Mills, which were removed from Paterson, N. J., besides others now in contemplation of erection.

LABOR.

The great advantage of this place as to labor, is the town of **SOUTH BALTIMORE**, adjoining the factories, containing hundreds of substantial brick houses, for the employees of these various works. (There are now being built by the Company, as well as by others, blocks of houses, in addition to the above.)

To Manufacturers of Hardwoods.

To Manufacturers of Brick.

To Manufacturers of Cotton.

To Prospective Manufacturers Looking Toward the South to Locate,
AND

TO CAPITALISTS.

WASHINGTON

LOUISIANA.

A CITY OF 1,800 PEOPLE.

Offers More Practical and Substantial Inducements Than Any Other Town in the South.

First.—At the very doors of Washington are VAST VIRGIN FORESTS of Hickory, Oak, Walnut, Magnolia, Cypress, and every variety of the Finest Hardwoods, so easy of access that Black Walnut and Hickory are cut for cordwood. The forests are practically inexhaustible, extending for 100 miles along the Bayou Courtaleau, Bayou Cocodrie and Bayou Bouef, upon which waterways Washington is situated. Magnificent opportunities for hardwood manufacturing exist at Washington.

Second.—Washington already possesses such industries as:

A Large Cotton Factory (cost \$50,000).
A Saw Mill.
A Drain Pipe and Tile Works.
A Steam Brick Mill.
An Oil Factory.
Three Cistern Factories.
A 100-saw Cotton Gin.
A Sash and Blind Factory.
Fifteen Large General Stores.

Churches, Schools and every advantage of an old-established town.

Third.—Washington is AT THE HEAD OF NAVIGATION of Bayou Courtaleau, and enjoys cheap transportation by water to New Orleans, the East and West, and low freights by both water and rail via the Southern Pacific Railway, which runs through the town. The cost of raw material and the finished product is thus reduced to a minimum, and the saving on Northern and Western freights alone make a profit of 10 to 25 per cent. to manufacturers located here.

Fourth.—Washington is situated in St. Landry Parish, adjoining the famous Teche Sugar Country, and every diversity in crops is grown. Some of the largest sugar plantations in Louisiana adjoin Washington, and rice, cotton, corn and oats yield enormous crops.

Fifth.—Labor in abundance is available for small manufacturing plants at very low cost.

WASHINGTON INVITES INQUIRIES.

For detailed information regarding its advantages and inducements for new industries address

LEON WOLFF, Mayor, Washington, La.

INVESTORS.—Attention is called to inducements offered by the town of

CLAREMONT, VA.

Fine Location for Factories, Mills, etc. Situated on the James river (deep water). Address

Claremont Citizens' Improvement Committee.

CLAREMONT, SURRY CO., VA.

FREE SITES & BUILDINGS FOR LEGITIMATE MANUFACTURERS!

DO YOU wish a better location for your plant than the one you occupy at present?

DO YOU desire factory sites and buildings erected after your own plans and specifications as a donation?

WE OFFER YOU a choice of locations in ILLINOIS, OHIO, INDIANA, &c., also in the cities of CHICAGO, MILWAUKEE, ST. PAUL, DULUTH, &c., with lowest freight rates to and from all points. ADDITIONAL CAPITAL ALSO REQUIRED

WRITE FOR PARTICULARS
YOUR BUSINESS WILL BE TREATED CONFIDENTIALLY AND
PROMPTLY.

ADDRESS
F. S. MORDAUNT
CHAMBER OF COMMERCE BLDG., CHICAGO
THIRD NATIONAL BANK BLDG., CINCINNATI, O.

GEO. A. HYDE,

Real Estate in all Branches.

J. R. HOWARD, C.E. S. J. DAVENPORT, M.E.

Special attention given to the

SALE OF MINES,

Mineral, Timber and Quarry Lands,

LAWRENCE BUILDING,

Rooms 16 and 17,

615 and 617 14th Street,

WASHINGTON, D. C.

DOL. MITE, SOAPSTONE, PHOSPHATE OF LIME, TALC, ETC.

For Sale.

BALTIMORE & OHIO R. R. CO.

The Baltimore & Ohio Railroad runs through this property, and has a terminus at Curtis Bay.

ELECTRIC RAILWAY.

An Electric Railway is now completed from the City of Baltimore to the Sugar Refinery (near the southern limits of this property), the fare upon which will be only five cents, the cars to be run every ten minutes, and thereby making it a part of Baltimore City, as well as easy of access at all hours.

CHURCHES.

The town contains a Presbyterian, a Catholic, a Methodist, a Baptist and an Episcopal Church.

BUILDING LOTS.

Capitalists and Builders to erect houses in this growing town, both for sale or to rent, will find a rare opportunity for investment: as the demand for houses is greater than the supply.

The Company will sell or lease water fronts, or lots for manufacturing and for dwelling purposes, at moderate rates.

Manufacturers will find it to their interest to examine this property before locating elsewhere.

For particulars and prices, apply to

WILLIAM S. RAYNER, President,

No. 8 East Lexington Street,

BALTIMORE, MD.

THE BRADSTREET Mercantile Agency

WAS ESTABLISHED IN 1849.

Is the oldest and financially the strongest organization of its kind, working in one interest and under one management, with more capital invested in the business, and expends more money every year for the collection and dissemination of its information than any similar institution in the world. Its reports are considered in the light of the grainings or credit, and those contemplating the granting of credit, add to a large corps of skilled employees, more than one hundred thousand correspondents contribute the result of their investigation and opinions. Subscriptions are annual, and may commence at any time the subscriber elects. Details as to prices and terms will be furnished upon application.

CHARLES F. CLARK, President,
Baltimore Office, - American Building.
H. KERSHAW, Secy.

HOTEL, Overlooking Central Park,
Fifth Avenue
58th and 59th
Streets, N.Y.
The Highest
Class.



ABSOLUTELY
FIRE-PROOF,
American
and European
Plans.

The water and ice used are vaporized and frozen on the premises, and certified to as to purity by Prof. Chas. F. Chandler.

BURLINGTON ROUTE. Industrial Department
Over 7,000 Miles of Railroad Under One Management.

MANUFACTURERS contemplating the removal of their plants or the building of branch ones in the West are urgently requested to communicate with the undersigned.

OPPORTUNITIES, RESOURCES, ASSISTANCE.—The Burlington Route reaches with its own line nearly every place of note in Illinois, Iowa, Minnesota, Missouri, Nebraska, Kansas, Dakota, Wyoming, Colorado, and has direct connections to every point in America.

Every conceivable resource in the shape of raw material, such as Iron, Ore, Coal, Copper, Zinc, Tin, Gold and Silver and other metals; thousands upon thousands of miles of forests, containing almost unlimited quantities of hard and soft woods; clays of all kinds and for every purpose; inexhaustible stone quarries of every description; immense quantities of Tan Bark, Flax Straw, in fact everything that is found in the ground or above the ground can almost surely be found somewhere on the vast Burlington Route.

By looking at the map you will see that the Burlington reaches with its own rails nearly every commercial center in the West. You will also discover by taking a second glance at the map that no other railroad in the world covers such a vast territory filled with nature's wealth, and tributary to every point in the world.

MANUFACTURERS OR OTHERS desiring any information regarding raw material, accessibility to markets, best cities and towns to locate in, what these places offer as inducements, etc., will do well to write for information.

There are more manufacturing industries located on the lines of the Burlington Route than on any other railroad in the United States.

The interests of The Burlington Route and those of a manufacturer or locator upon its lines are mutual.

THE INDUSTRIAL DEPARTMENT of this road possesses the information you want. If not, it will procure it for you without any cost to you. This department is as complete as any railroad industrial department in the world. Will appreciate any correspondence requesting information. This department will make the work and worry of seeking a suitable and advantageous location easy for you.

For detailed information and for large country maps of the territory covered by the Burlington lines, write to or call upon GEO. H. ROSS, Superintendent Industrial Department Burlington Route. General Offices, Adams and Franklin Streets, Chicago.

LOCATIONS FOR FACTORIES

Chicago, Milwaukee & St. Paul Railway Co.

INDUSTRIAL DEPARTMENT.

The Chicago, Milwaukee & St. Paul Railway Company desires to have the raw material on its 6,150 miles of road in Illinois, Wisconsin, Northern Michigan, Iowa, Missouri, Minnesota, South Dakota and North Dakota utilized.

In addition to the vast agricultural resources, its territory comprises forests of hard and soft wood, mines of iron and other metals, coal and other minerals, quarries, clays of all kinds, tanbark, flax and other products. Water-powers (both river and artesian) are also still available.

A number of new factories have been induced to locate—largely through the instrumentality of this Company—at enterprising towns on its lines.

As the interest of the Company is to secure the location of industries at places where the surroundings will insure their permanent success, the information furnished a particular industry is pertinent and reliable.

The people on the whole system are one live and thriving community of business men in whose midst it is safe and profitable to settle. Local capital is being largely invested in local factories, and taken as a whole, the country through which the road runs is commanding attention as the coming industrial territory of the United States. Solid concerns, manufacturers, large or small, who thoroughly understand their business are sought for at suitable points on the road.

Individuals or companies wishing to embark capital in Western industry can find a profitable field.

For particulars relative to industrial advantages on the line, address

LUIS JACKSON,

INDUSTRIAL COMMISSIONER.

C., M. & St. P. R'y, 160 Adams St., Chicago, Ill.

Pittsburgh & Lake Erie R.R.

CLEVELAND SHORT LINE.

20 Miles Shorter than any other line between Pittsburgh and Cleveland.
4 Through Trains in each direction Daily.

The Favorite Route to Lake Chautauqua, Buffalo, Niagara Falls, and all points in Central and Northern New York, New England and Canada.

City Ticket Office,
639 Smithfield Street.
E. C. Dunnivant, City Pass. Agt.
G. M. Beach, Gen'l Supt.

L. M. Warden, Trav. Pass. Agt.
A. E. Clark, Gen. Pass. & Tkt Agt.

— TAKE THE —
Cleveland, Lorain & Wheeling R.R.
The Most Direct Route Between
CLEVELAND, OHIO,
— AND —
WHEELING, W. VA.

BEAUTIFUL SCENERY and QUICK TIME.
NO CHANGE OF CARS.

For time-cards, etc., address

OSCAR TOWNSEND, Gen. Manager

Wheeling & Lake Erie Railway.
NEW THROUGH LINE
BETWEEN

Toledo and Ohio River Points,
STUBENVILLE, WHEELING, PITTSBURGH and
MARIETTA.

THROUGH COACHES to the OHIO RIVER,
and THROUGH CONNECTIONS to
PITTSBURGH

And all points East, via Akron, Cuyahoga Falls, Kent, Ravenna, Leavittsburg, Warren, Niles, Grand, Youngstown, New Castle and Allegheny. The only line ticketing its passengers through to Philadelphia, New York and New England Cities, via Washington and Baltimore at SHORT LINE RATES.

A. G. BLAIR,
Traffic Manager.

JAS. M. HALL,
Gen. Pass. Agt.

VALLEY RAILWAY

Short and Only Direct Route Between

**CLEVELAND, CAMBRIDGE, AKRON, CANTON
MARIETTA and WHEELING.**

Four Through Trains Daily between Cleveland, Akron and Canton, Through Pullman Palace Drawing Room Buffet Sleeping Cars between Cleveland and Chicago. Ask for tickets via Valley and B. & O. Route.

J. T. JOHNSON, **J. B. CAVEN,**
General Supt. Gen. Pass. Agt.

**CLEVELAND, CANTON AND SOUTHERN
RAILROAD,**

— THE —

SHORT AND POPULAR LINE
BETWEEN

Cleveland, Canton and Zanesville.

No change of cars between Cleveland and Zanesville.

Three trains each way between Cleveland and Canton.

Finest Day Trains in the State. Cars heated by steam from locomotive.

J. W. WARDWELL, Gen'l Supt., Cleveland, Ohio.

F. R. BRIGGS, General Passenger Agent.

H. A. KENNEDY, Assistant Supt., Canton, Ohio.

WORLD'S FAIR ALBUMS.

Given Away by the C. H. & D.

"THE WORLD'S FAIR ROUTE"

From Cincinnati.

A magnificent album of World's Fair views has been published by the Cincinnati, Hamilton & Dayton, which will be sent to any address on receipt of 10 cents in stamps. The Cincinnati, Hamilton & Dayton, in connection with the Monon Route, is the only line running Pullman perfected safety vestibuled trains with dining cars from Cincinnati to Chicago. The "Velvet" trains of the Cincinnati, Hamilton & Dayton are admittedly the "Finest on Earth," and the line is a representative "World's Fair Route." For tickets, rates, etc., address any Cincinnati, Hamilton & Dayton agent. To get an album send your address, with 10 cents in stamps, to E. O. MCCRICK, G. P. & F. Agt., Cincinnati, O.

FURNESS, WITHEY, & CO., LTD.

AGENTS FOR

FURNESS LINE.

REGULAR SAILINGS

FROM

NEWPORT NEWS, VIRGINIA.

FOR LIVERPOOL.

S.S. ISTRIAN.....4,000 tons

S.S. BULGARIAN.....4,000 tons

S.S. BAVARIAN.....4,000 tons

S.S. MADRID.....4,000 tons

FOR LONDON.

S.S. BOSTON CITY.....2,500 tons

S.S. RIFON CITY.....2,500 tons

S.S. STRAITS OF BELLE ISLE.....3,000 tons

S.S. WETHERBY.....2,500 tons

FOR GLASGOW.

S.S. MANDALAY.....tons

S.S. CYNTHIANA.....4,000 tons

S.S. FELICIANA.....tons

FOR HAVRE (Pinkney-Furness Lines.)

S.S. NERANO.....4,000 tons

Through Bills of Lading issued to interior points in the United Kingdom, or on the Continent, at very favorable rates. For freight, &c., apply to

C. W. ROWLEY, Manager,

Manufacturers' Record Building, Baltimore, Md.

SOUTHERN PACIFIC COMPANY'S

CHEAP TRIPS TO

CALIFORNIA and MEXICO,

LEAVING NEW ORLEANS DAILY

VIA THE

"SUNSET ROUTE"

ELEGANT PULLMAN BUFFET SERVICE

To All Common California Points.

The only Standard Gauge Short Line to the CITY OF MEXICO.

The only line running Pullman Buffet Cars over the border.

For Map Folders, Time Schedules and any general information, please call on or address the undersigned:

E. E. CURRIER, N. E. AGT., NO. 192 WASHINGTON

STREET, BOSTON, MASS.

L. H. NUTTING, E. P. AGT., NO. 343 BROADWAY,

NEW YORK.

R. J. SMITH, PASSENGER AGT., 49 S. THIRD STREET,

PHILADELPHIA, PA.

Geo. C. HERRING, AGT., 208 LEWIS BUILDING, PITTSBURGH, PA.

W. H. CONNOR, COM. AGT., CHAMBER OF COMMERCE

BUILDING, CINCINNATI, OHIO.

W. G. NEIMAYER, G. W. AGT., 204 S. CLARK STREET,

CHICAGO, ILL.

R. O. BEAN, T. P. A., NASHVILLE, TENN.

R. H. HILL, T. P. A., ATLANTA, GA.

G. W. ELY, T. P. A., MONTGOMERY, ALA.

E. HAWLEY, A. G. T. M., 343 BROADWAY, NEW YORK.

J. G. SCHRIEVER, T. M. AT SYSTEM, NEW ORLEANS, LA.

W. C. WATSON, G. P. & T. A., NEW ORLEANS, LA.

GENERAL OFFICES:

NEW ORLEANS AND SAN FRANCISCO.

WHERE DOLLARS ARE MADE.



The line of the QUEEN & CRESCENT ROUTE through KENTUCKY, TENNESSEE, ALABAMA, MISSISSIPPI, and LOUISIANA.

OFFERS GREATER OPPORTUNITIES TO

SETTLERS,

MANUFACTURERS AND GENERAL

BUSINESS ENTERPRISES

than any other part of the U. S., vast bodies of

COAL, IRON, TIMBER AND FARM LANDS,

Also THOUSANDS OF ACRES OF LONG

LEAF YELLOW PINE for sale cheap.

This road runs through the thriving towns of Lexington, Danville, and Somerville, Ky.; Rockwood, Harriman, and Chattanooga, Tenn.; Ft. Payne, Attalla, Birmingham, and Tuscaloosa, Ala.; Meridian, Hattiesburg, Jackson and Vicksburg, Miss.; New Orleans, Delhi, Monroe, and Shreveport, La. Some of the new towns will donate money and land to locate manufacturing enterprises.

The R. R. Co. will make low rates for Passengers and Freight, and afford investors every opportunity to examine the different localities. If necessary, will send a representative with the party.

Full particulars, and any required information, will be sent by mail on application to

D. G. EDWARDS, G. P. & T. AGT.

Q. & C. ROUTE, CINCINNATI, O.

ATLANTIC TRANSPORT LINE.

BETWEEN BALTIMORE AND LONDON.

Calling at Swansea and Philadelphia on the

outward passage.

S.S. MINNESOTA, 5,000 tons. S.S. MISSOURI, 4,000 tons

S.S. MARYLAND, 4,000 tons. S.S. MICHIGAN BLD.

S.S. MONTANA, 4,000 tons. S.S. MISSISSIPPI, BLD.

S.S. MAINE, 4,150 tons.

BALTIMORE STORAGE & LIGHTERAGE CO.

236 La Salle Street, 1/2 and 1/2 Fenchurch Street,

Chicago, Ill. and London.

400 Second Street, Baltimore, Md.

RICHMOND AND YORK RIVER LINE.

On and after MONDAY, February 20, 1892, the steamers of this line leave Baltimore daily (Sunday excepted) at 5 P. M. for West Point, Richmond and the South, arriving at Gloucester Point and Allmond's Wharf; steamer leaving Monday, Wednesdays and Fridays calling at Gloucester Point and Allmond's Wharf; steamer leaving Tuesdays, Thursdays and Saturdays calling at Yorktown and Clay Bank. Through tickets and bills of lading issued to all points of the Richmond & Danville System. Way freight must be prepaid. Fare to Richmond, first class, \$2.00, second class, \$1.50. Tickets sold and baggage checked at Geigay & Co.'s, 205 East Baltimore Street.

REUBEN FOSTER, E. J. CHISM, General Manager, Gen. Freight & Ticket Agt.

Office, 530 Light Street.

THE BAY LINE

FOR

Fortress Monroe, Norfolk and the South.

The Bay Line comprise the New and Elegant Steamers

"VIRGINIA," "CAROLINA" and "FLORIDA."

All the comforts and luxuries of a first-class hotel are afforded the traveler, 8 saloons and elegant saloons and staterooms, which make a specialty with this line. Elegant service and courteous attention. Steamers leave Baltimore daily (except Sunday) at 9 P. M.

At Old Point Comfort is located the splendid HYGEIA HOTEL, a delightful resort at all seasons of the year. For tickets and information apply at Company's Office,

157 W. BALTIMORE STREET, BALTIMORE.

On board of steamers.

D. J. HILL, Superintendent.

E. BROWN, General Ticket Agent.

MURRELL'S LINE

FROM

BRUNSWICK to LIVERPOOL and BREMEN.

The Only South Atlantic Direct Line to European Ports.

SHORTEST ROUTE TO EUROPE.

Commencing September 20th, 1892, the following steamships will make regular sailings from Brunswick, Ga., to Liverpool and Bremen:

Steamship, Tons, Master.

WIVENHOE, 1863 CLARK,

HAY-GREEN, 1869 BLACKLAW,

NORTH WILKESBORO,

NORTH CAROLINA,

One of the Conspicuous Successes of the Year in Town Building,
Presents the Following Record:

Population March 4, 1891, actual count, 48.

Population March 4, 1892, actual count, 348.

Gain in one year 625 per cent.

Townsit purchased November 11, 1890; act of incorporation passed by the Legislature, March 4, 1891; first lot sold at private sale, May 12, 1891. Within the first year of its existence ten miles of streets have been graded, and \$22,000 spent in public improvements. Where prior to March 4, 1891, there was only a farm settlement without pretensions to being even a village, there is to-day a thriving, busy, growing, trading and manufacturing center, with

A Large Well-Kept Hotel,
The Bank of North Wilkesboro, \$40,000 Capital,
A large Livery and Sale Stable,
Two Large Wholesale Stores,
One Hardware Store,
One Furniture Store,
Ten General Merchandise Stores,
Three Saw Mills, Sash and Blind Factories,
One Foundry and Machine Shop,
A Handsome, Well-Edited, Home Print Newspaper, The North Wilkesboro News,
One School,
Two Churches Under Way,

Two Brick Yards in operation, and a number of other enterprises practically secured.

Arrangements are about completed for a Woolen Mill.

A large iron front brick block, containing Bank Building, two Store Rooms, Opera House, and Printing Office; A graded School Building and an Iron Bridge across the Yadkin River, in the Eastern part of town, will be completed during the spring and summer.

Turnpike roads to Tennessee and Virginia are about completed; county roads leading into town are being improved and numerous good new ones built, with the intention of making this the center for all the wagon trade of this section.

A tobacco warehouse for the sale of the high grade leaf of this district will be built during the summer, so as to give a home market for the tobacco crop that will be grown this year.

Compare this record with that of any other new town you have heard of during the past dull season.

NORTH WILKESBORO,

Is 75 miles west of Winston-Salem, at the present terminus of the Northwestern North Carolina Railroad, which when ultimately completed to Bristol, Tenn., will give the shortest route between Norfolk and Cincinnati. North Wilkesboro is the most important trading point between Winston-Salem and Bristol, and is in the center of the great undeveloped mineral and timber district of Northwestern North Carolina, being by United States Postal Map on an air line 75 miles southeast of Bristol, 45 miles east of Cranberry, N. C., 40 miles north of Statesville, 45 miles northeast of Hickory, 90 miles northeast of Asheville, 45 miles southeast of Mt. Airy, and 80 miles south of the Norfolk & Western Railroad, in the valley of the Yadkin, between the Brushy Mountains on the South and the Blue Ridge on the North. Climate, healthfulness, water, drainage and location unsurpassed by any town in North Carolina.

The townsit consists of 1,088 acres, located, by the way on a farm originally owned by General John B. Gordon's grandfather. The first public auction sale of lots was held December 2, 1891, and 188 lots were sold. Purchasers have in many cases been able to resell at a handsome profit. The company has sold 50 lots at private sale since then, on many of which houses are now being erected. It is a significant fact that among the business buildings erected a large per cent. are substantial brick structures, while for architectural beauty and cost many of the residences are much superior to those usually found in a town so young.

At the second auction sale, May 11th, 1892, 35 business lots and 44 residence lots sold for \$16,490, an average of \$8.35 per front foot, which is \$2.53 per front foot (or 44 per cent.) more than the average at the sale last December, which was the best sale made in North Carolina during last year. Since the sale, a contract has been closed for the location of another large saw mill, planing mill, sash, door and blind factory combined, which will do a large shipping business. A contract is closed for the location of extract works with a capital stock of \$300,000. The plant will cost \$125,000 and will cover six acres of land. Twelve families from the North will move down. The company will erect a large electric-light plant in connection with the extract works. North Wilkesboro will get there and will not be long doing so.

Through the townsit runs a stratum of serpentine stone, 200 feet in width, and also a bed of iron ore equal in quality to that of Cranberry. The Town Company also owns 4,100 acres of mineral, granite and timber lands in Wilkes County. It is probable that the work of developing the great mineral and timber interests of the section will be commenced in a short time, and on an extensive scale.

Sites will be donated and stock subscribed to such manufacturing enterprises as may be advantageously located here.

The policy of the Company is a most liberal one in this respect, it being determined to aid all legitimate enterprises to any reasonable extent. There are 328 miles of water courses within the borders of Wilkes County, furnishing to the vicinity of North Wilkesboro a water power as great as Fall River. The climate, while not moist, is neither harsh nor dry, and is especially suitable to the spinning of fine cotton yarns, such as cannot be made in the extreme South or North. There is also a fine opportunity here for bleacheries, to the establishment of which at Southern points there is a tendency at present. As they can't go where sluggish streams, impregnated with vegetable matter, abound, the quick flowing streams of clear mountain water, so numerous about North Wilkesboro, afford everything desired. Numerous other industries will do well at North Wilkesboro, and will be most substantially encouraged to locate there.

Capitalists, Home Seekers, Health Seekers, Manufacturers of wood and iron, and many other industrial workers may well investigate North Wilkesboro's advantages.

The above-described townsit and other property belongs to the Winston Land & Improvement Co., which was chartered by act of Legislature, session of 1887; ratified March 4, 1887, chapter 82. Authorized capital \$1,000,000. Present capital stock \$125,000, all subscribed and paid up.

OFFICERS—G. W. HINSHAW, President, of Hinshaw & Medearis, Wholesale Merchants; Vice-President People's National Bank, Winston, N. C. DR. W. L. BROWN, Vice-President, of Brown Brothers, Tobacco Manufacturers, Winston, N. C. W. F. TROGDON, Secretary and Treasurer, North Wilkesboro, N. C.

BOARD OF DIRECTORS—GEO. W. HINSHAW, Winston, N. C. MAJ. CHANNING M. BOLTON, Chief Engineer Richmond & Danville Railroad, Washington, D. C. P. H. HANES, of P. H. Hanes & Co., Tobacco Manufacturers, Winston, N. C. COL. J. M. WINSTEAD, Cashier Piedmont Bank, Greensboro, N. C., and President H. P. Scales Tobacco Co., Atlanta, Ga. A. A. FINLEY, ESQ., Mayor of North Wilkesboro, N. C.

ATTORNEYS—T. B. FINLEY, ESQ., North Wilkesboro, N. C. HON. C. B. WATSON, Winston, N. C. HON. J. C. BUXTON, President First National Bank, Winston, N. C. HON. W. W. BARBER, Wilkesboro, N. C.

PLATS, PRICES AND ANY DESIRED INFORMATION PROMPTLY FURNISHED ON APPLICATION TO

W. F. TROGDON, Secretary and Treasurer.

NORTH WILKESBORO, N. C.

As A LOCATION for Manufactures

Of Iron and Wood and for General Industrial and
Business Enterprises.

FRONT ROYAL, VA.

INVITES INVESTIGATION.

Its location, at the junction of the Norfolk & Western Railroad (Shenandoah Valley line) and the Richmond & Danville's branch, give it excellent transportation facilities. It is only a few hours' ride distant from Washington. The Norfolk & Western's direct line to Washington will be built from Front Royal.

There is no Finer Agricultural Country in the World than the Famed Shenandoah Valley, in which Front Royal is Located.

A WIDE RIVER WITH SWIFT CURRENT FURNISHES WATER POWER
AND MAKES DRAINAGE PERFECT.

Front Royal is a Prosperous Town, with an Extensive Mercantile Business
and Many Manufacturing Enterprises in Operation and
Under Construction.

INVESTIGATION OF ITS ADVANTAGES IS INVITED BY THE

Front Royal--Riverton Improvement Company,
FRONT ROYAL, VIRGINIA.

Alphabetical Index of Advertisers.

FOR "CLASSIFIED INDEX" SEE PAGES 3, 5 AND 7.

A	
Acme Roofing Co.	31
"Active"	23
Adams, John N.	6, 8
Adams, S., & Son.	8
Adams & Woodson.	6
Ajax Iron Works.	19
Akron Tool Co.	33
Albro, The E. D., Co.	8
Alcott, T. C., & Son.	41
Alford & McCarthy.	9
Allfree, The J. B., Mfg. Co.	45
Allis, The Edw. P., Co.	20
Alsing, J. R., Co.	14
American Bridge & Iron Co.	8
American Engine Co.	23
American Hoist & Derrick Co.	4
American Imp. Anti-Fret. Met. Co.	13
American Ore Machinery Co.	14
American Screw Co.	46
American Supply Co.	35
American Well Works.	49
Amweg, Fred'k J.	6
Anderson Fdy. & Machine Works.	32
Armitage-Herschell Co.	9
Arnold, G. W.	5
Ashland Fire Brick Co.	48
Atkins, E. C., & Co.	36
Atlas Mfg. Co.	29
Ault & Wilborg Co.	39
Aultman & Taylor Machinery Co.	20
B	
Babcock & Wilcox Co.	19
Ballerton, H., & Son.	9
Baldwin Locomotive Works.	13
Baltimore Engraving Co.	39
Balto, Malleable Iron & S. C. Co.	15
Baltimore Storage & Light Co.	43
Barnes, W. F. & John, Co.	42
Barratt, Edward, & Co.	6
Bass Foundry & Machine Works.	20
Bates, Jas.	8
Battee, Richard R.	24
Bauer, A. G.	6
Bay Line.	43
Beach, H. L.	37
Beckett Foundry & Machine Co.	14
Beggs, Jno. E., Mch'y. & Sup. Co.	47
Belden Machine Co.	8
Bell, David.	8
Bement, Miles & Co.	12
Beutel & Magedant Co.	37
Berger Bros.	31
Berger Mfg. Co.	31
Bernsee, C. D.	27
Berryman, Jas.	21
Bertolette, Chester, & Co.	24
Bevill, W. E., Prest.	24
Bickford, H.	48
Bishop, Thos. F., & Co.	8
Blakeslee Mfg. Co.	40
Bozic & Clarke.	49
Bolles, J. E., & Co.	8
Boomer, N. Boschert, Press Co., The.	23
Bordens' C. A. Co. Woodwork & Co.	24
Bostwick Metal Lath Co.	29
Bottiger, Gustaf.	6
Bradley & Co.	12
Bailey Fertilizer Co.	15
Bradstreet Co.	42
Brennan & Co.	36
Brewer, H. & Co.	32
Brick Maker.	23
Bristol's Mfg. Co.	48
Brooks, T. H. & Co.	47
Brown Hoist, & Con. Machine Co.	2
Brown & King Supply Co.	34
Brunswick Terminal Co.	43
Buckeye Engine Co.	18
Bucyrus Stm. Shov. & Dredg. Co.	4
Buffalo Scale Co.	21
Bullock, M. C., Mfg. Co.	17
Burgess, W. R.	24
Burnham Bros.	41
Burns Mfg. Co.	39
Byers, Jno. F., Machine Co.	17
C	
Cabell, L. Breckinridge.	24, 42
Caldwell, H. W., & Son Co.	24
Caldwell Co., W. E.	10
Calhoun & Co.	6
Cambridge Roofing Co.	31
Cameron, A. S., Steam Pump Wks.	41
Cameron & Barkley Co.	11
Canton Steel Roofing Co.	31
Cardwell Machine Co.	34
Carroll, George.	34
Carver Cotton Gin Co.	34
Central Machine Works.	32
Chambers Brothers Co.	32
Champion & Champion.	23
Champion Iron Co.	33
Chandlon & Taylor Co.	11
Charleston Lead Co.	11
Chase, John C.	6
Chattanooga Fdy. & Pipe Works.	29
Chesapeake Belting Co.	11
Chester Steel Castings Co.	13
Chicago, Burlington & Quincy R. R.	43
Church, Isaac.	24
Cincinnati, Hamilton & D. R. R.	43
Cincinnati Corrugating Co.	31
Cincinnati Tool Co.	29
Clarendon, Va.	42
Clark, Geo. P.	33
Clark, W. J. & Co.	35
Clay, The Oliver P., Co.	20
Cleveland, Canton & Southern R. R.	43
Cleveland & Hardwick.	9
Cleveland Twist Drill Co.	43
Cline Engine & Machine Co.	18
Coaldale Brick & Tile Co.	8
Coates, Ernest.	27
D	
Cochran, A. M.	27
Cogswell, M. C.	10
Colfe, J. J., & Co.	27
Coleman, H. Dudley, Mch. Co., Ltd.	10
Collins & Hackett.	6
Columbus City, Ala.	27
Colville, Fulton.	26
Conly, Geo. N.	6
Contractors' Plant Mfg. Co.	17
Copeland & Bacon.	17
Cordesman, Meyer & Co.	36
Corporation Book Co.	27
Corres, School of Mines, The.	9
Cortright Metal Roofing Co.	31
Covett Mfg. Co.	10
Covington Machine Co.	12
Crandall Packing Co.	40
Crescent Mfg. Co.	24
Crompton Loom Works.	34
Cronk Hanger Co.	8
Crown Smelting Co.	4
Cummer, F. D., Sons Co.	16
Cunny, Alex. D.	9
Curran, Jas. H.	8
Cushman Iron Co.	33
Cyclone Pulverizing Co.	14
E	
Davidson Ventilating Fan Co.	47
Day, J. H., & Co.	*
Dean Bros. Steam Pump Works.	40
Deffler Engineering Co., Ltd.	2
DeLew & Bailey.	6
Deming Co.	40
Dempwolff, C. H., & Co.	11
Derby & Kilmer Desk Co.	23
Dewey, Frederic P.	6
Dixon, Jos., Crucible Co.	48
Dolph, A. M., Co.	4
Dopp, H. Wm., & Son.	33
Dowrie Bros. & Nevin.	40
Draper, Geo., & Sons.	22
Draper Machine Tool Co.	12
Draper, T. Wm-Morgan.	6
Drew, Baldwin & Co.	6
Dudley, S. A.	34
Dufur & Co.	9
Dunning, W. D.	15
Duvimage, P., & Co.	26
F	
Eagle Boiler Works.	19
Edthrooke, W. J.	24
Edmond, H. P.	19
Egan Co., The.	36
Ehrhart-Warren Mfg. Co.	30
Eller, J. H., & Co.	31
Emerson, Smith & Co.	38
Empire Paint & Roofing Co.	31
Employers' Lia. Assur. Cor., Ltd.	22
Enterprise Boiler Co.	19
Enterprise Safety Elevator Co.	38
Evans, George A.	25
Exchange Banking & Trust Co.	23
Fitzsimons & Co.	*
Fletcher & Thomas.	32
Foos Mfg. Co.	32
Forrest Silver Bronze Packing Co.	9
Forsaith, S. C., Machine Co.	20
Fostoria Steel Roofing Co.	31
Fouche, R. T.	32
Frey-Scheckler Co.	32
Fresche, E. M., & Co.	32
Frescoln, S. W.	8
Frick Co.	18
Frisbee Lucop Mill Co.	14
Fritz, George J.	4
Froehling, Dr. Henry.	6
Front Royal-Riverton, Va.	45
Frontier Iron Works.	38
Furness Line.	43
G	
Gambrill, C. A., Mfg. Co.	39
Gandy Belting Co.	11
Garfield Injector Co.	27
Gates Bros. & Sharp.	8
Gates Iron Works.	14
Gatlin, R. H.	24
General Electric Co.	35
Gibbes, W. H., Jr. & Co.	29
Glamorgan & Co., The.	6
Glencock & Co.	48
Glen Cove Machine Co., Ltd.	37
Globe Iron Roofing & Cor. Co.	31
Globe Machine Works.	19
Godfrey & Train.	23
Goffley & Finley Iron Works.	8
Goodell & Waters.	*
Graham, J. S., & Co.	*
Graham-Twist Drill & Chuck Co.	30
Grant Corundum Wheel Mfg. Co.	33
Graves Elevator Co.	38
Gravity Purifier Co.	27
Greaves & Kusman.	18
Griswold Machinery Co.	6
Monroe Mfg. Co.	17
Montross Metal Shingle Co.	31
Moore & White Co.	48
Mordant, F. S., Co.	42
Morgan, F. B. S.	23
Hackney Hammer Co.	12
Haden, C. J.	26
Haines, Jones & Cadbury Co.	29
Harrington, E., Son & For.	9
Harrington & King Corp.	2
Harrisburg Fdy. & Mch. Works.	19
Harris, N. W., & Co.	*
Harris & Thornton.	8
Hartford, R. F.	6
Hartford Steam Boiler Inspection & Insurance Co.	39
Hartman Mfg. Co.	11
Hartsfield Furnace & Refining Co.	23
Heffernan, Wm. A.	29
Help Wanted.	23
H	
Hesler Electric Co.	47
Hillyer, E. C., & Co.	30
Hoen, A., & Co.	27
Holmes, E. & B.	36
Holton Iron Roofing Co.	31
Holyoke Steam Boiler Wks.	20
Hoopers & Townsend Co.	13
Hopkins, Dwight & Co.	27
Hopkins, E. M.	25
Hornier, William.	27
Houghton, A. N.	27
Houston, Stanwood & Gamble.	18
Howard Fdy. & Machine Works.	38
Howard-Harrison Iron Co.	29
Howard Hydraulic Cement Co.	17
Hundley Bros. & Co.	24
Hyde, Geo. A.	42
I	
Indiana Machine Works.	37
Ingersoll Milling Machine Co.	12
Ingersoll-Sergeant Drill Co.	2
International Ry. Equip. & Sup. Co.	25
Iron Masters' Laboratory.	6
J	
Jackson, Luis, Industrial Commr.	43
Jeffrey Mfg. Co.	34
Jenkins Bros.	9, 48
Johns, H. W., Mfg. Co.	30
Jones, B. M., & Co.	48
Jones, Dudley E., Co.	29
Jordan & MacLeod.	10
Jory & Co.	27
K	
Kanneberg Roofing Co.	31
Kaye, Samuel.	24
Keashey & Mattison Co.	22
Keegan & Halpin.	47
Kelthaus & Co.	20
Kells & Sons.	*
Kelly Bros.	20
Kelly, O. S., Co.	16
Kennedy, Julian.	8
Kilburn, Lincoln & Co.	34
Kingan & Co.	27
Kinney & Gager Co.	31
L	
Lackawanna Lubricating Co.	9
Laidlaw & Dunn Co.	40
Lake, J. H. & D., Co.	48
Lancaster, Jas. H.	15
Landreth, Olin H.	6
Ledoux Chemical Laboratory.	6
Lemon, George E.	48
Lerch-Warren Mfg. Co.	30
Leffel, Jas., & Co.	41
Leffel, W. C., Co.	27
Lodge & Davis Machine Tool Co.	26
Lombard, Geo. R., & Co.	19
Long Star Plaster Co.	17
Long & Allstatter Co.	12
Louisville Fire Brick Works.	48
Lowell Machine Shop.	34
Lubroleine Oil Co.	16
Ludlow-Saylor Wire Co.	9
Ludlow Valve Mfg. Co.	41
Luray Artistic Wood Co.	37
M	
"Machine Shops".	25
Main Belting Co.	27
Manly Machine Co.	24
Mansfield, H. H.	25
Mapkepeace, C. R., & Co.	6
Males, A. S., & Co.	25
Mario Steam Shovel Co.	2
Maris & Beekley.	9
Marmaduke, W. W.	25
Marston, J. M., & Co.	*
Mastlin, John H., & Son.	40
McCandless, John M.	6
McClure & Maxwell.	23
McEwen, J. H., Mfg. Co.	20
McGowan, John H., Co.	41
McKagin Iron & S. Shattung Wks.	12
McLanahan & Stone.	29
McNaull Machine & Foundry Co.	48
Mechanical Gold Extractor Co.	48
Merchant & Co.	*
Merchants & Miners' Transp. Co.	43
Mey, F. H. C.	9
Meyers, Fred. J., Mfg. Co.	33
Mezger, C. Ad.	6
Michigan Emery Wheel Co.	33
Middendorf, Oliver & Co.	42
Miller Safe & Iron Works.	10
Milton Mfg. Co.	29
Miningerode, Wm.	25
Mitchel, S. L.	42
Mitts & Merrill.	37
Moler, J. D. & Wm. G.	6
Morten, Edward, & Co.	23
Mosser, W. F., & Son.	14
Mueller, H., Mfg. Co.	41
Murray, James, & Son.	14
N	
National Cotton Gin Co.	34
Neracher & Hill Sprinkler Co.	29
New England Vent. & Heat. Co.	34
New Process Twist Drill Co.	30
New York Belt'g & Pack'g Co., Ltd.	11
Safety Elevator Brake Co.	8
Safety Battery Co.	8
Sampson, T. H.	24
Sampson Cordage Works.	*
Sanderson, John.	6
Sanders & Stayman.	27
Sauder, J. M., & Co.	23
Sauders	



General Electric Company.

44 Broad St., New York City. 620 Atlantic Ave., Boston, Mass.



Is the ONLY INCANDESCENT LAMP

LAWFULLY MADE.

ALL OTHERS INFRINGE THE EDISON PATENTS AND ARE COUNTERFEITS.

See decision of Court of Appeals in case of Edison Electric Light Company vs. United States Electric Light Company, decided October 16th, 1892.

Copies of this decision will be sent on application.

BRANCH OFFICES:

620 Atlantic Avenue, Boston, Mass.
123 and 125 Adams Street, Chicago, Illinois.
264 West Fourth Street, Cincinnati, Ohio.
Gould Building, Atlanta, Georgia.
15 First Street, San Francisco, California.

14 Broad Street, New York
509 Arch Street, Philadelphia, Pennsylvania.
1331 F Street, N. W., Washington, D. C.
401-107 Sibley Street, St. Paul, Minnesota.
Masonic Temple, Denver, Colorado.

HEISLER ELECTRIC CO.

Manufacturing and Constructing

ELECTRICAL ENGINEERS,

Transformer and
Direct Current
Apparatus.
Series Lamps for
Arc Circuits.



OFFICE:
DREXEL BUILDING,
PHILADELPHIA.

STORAGE BATTERY

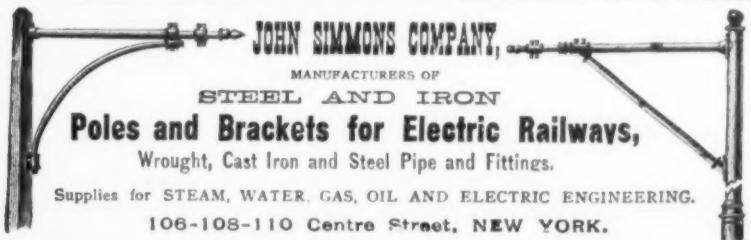
INSTALLATIONS FOR ALL SERVICES.

DYNAMOS AND ELECTRICAL MACHINERY

ENGINES, BOILERS and PUMPS.

THOMSON-HOUSTON, EDISON, WESTINGHOUSE and Standard Makes always on hand.
Electric Light and Steam Plants Bought and Sold.

THE JOHN E. BECCS MACHINERY & SUPPLY CO., 74 Cortlandt Street, NEW YORK.



Poles and Brackets for Electric Railways,

Wrought, Cast Iron and Steel Pipe and Fittings.

Supplies for STEAM, WATER, GAS, OIL AND ELECTRIC ENGINEERING.

106-108-110 Centre Street, NEW YORK.

DYNAMOS.

AUTOMATIC, INCANDESCENT. Write for Catalogue and Prices.

ROCKFORD ELECTRIC MFG CO.,

MOTORS.

LEADS CLAD, ANY VOLTAGE.

Rockford, Ill.

THE FIRST SYSTEMATIC TREATISE ON THE ELECTRIC RAILWAY

THE ELECTRIC RAILWAY IN THEORY AND PRACTICE.

By O. T. CROSBY and DR. LOUIS BELL.

Covering the General Principles of Design, Construction and Operation.

OCTAVO, 100 Pages and 179 Illustrations, Price, \$2.50.

TABLE OF CONTENTS. Chapter I. General Electrical Theory. II. Prime Movers. III. Motors and Car Equipment. IV. The Line. V. Track, Car Houses, Snow Machines. VI. The Station. VII. The Efficiency of Electric Traction. VIII. Storage Battery Traction. IX. Miscellaneous Methods of Electric Traction. X. High Speed Service. XI. Commercial Considerations. XII. Historical Notes.

APPENDICES. Appendix A. Electric Railway vs. Telephone Decisions. B. Instructions to Linemen. C. Engineer's Log Book. D. Classification of Expenditures of Electric Street Railways. E. Concerning Lightning Protection, by Prof. Ellhu Thomson.

In this important new book just issued will be found a full discussion of the principles, apparatus and methods of construction employed in electric railroading. As will be seen from the table of contents, it treats all departments of the subject as comprehensively as is practicable in a volume of reasonable size. The illustrations have been prepared especially for it, and many of them are entirely new. To Electric Railway Managers, Superintendents, Electricians and Operators, this volume is invaluable, while no one interested in the modern applications of electricity will want to be without it. The necessity for such a book has been keenly felt.

Copies of *The Electric Railway in Theory and Practice*, or any other Electrical work published, will be mailed to any address, postage prepaid, on receipt of price. Address

THE MANUFACTURERS' RECORD, Baltimore, Md.

SECOND EDITION REVISED. ENLARGED. ENTIRELY REWRITTEN

A DICTIONARY OF ELECTRICAL WORDS, TERMS & PHRASES.

By EDWIN J. HOUSTON, A. M.

"The most valuable of any single book belonging to the literature of Electricity."

560 Large Octavo Pages, 570 Illustrations, Price, \$5.00.

An Indispensable Reference Book, not only for Electricians, but for Every One Interested in Current Progress.

Some idea of the scope of this timely and important work, and of the immense amount of labor involved in it, may be formed when it is stated that it contains definitions of about 5,000 distinct WORDS, TERMS or PHRASES.

The Dictionary is not a mere word book. The words, terms and phrases are invariably followed by a short, concise definition, giving the sense in which they are correctly employed and a general statement of the principles of electrical science on which the definition is founded.

As one feature an elaborate system of cross references has been adopted, so that it is as easy to find one feature as the words and aliases are readily detected and traced.

The typography is excellent, being large and bold, and so arranged that each word catches the eye at a glance by standing out in sharp relief from the page.

Copies of Houston's Dictionary, or of any other electrical work published, will be mailed to any address in the world, postage prepaid, on receipt of price. Remit by P. O. Order, Draft, Registered Letter or Express, and address

THE MANUFACTURERS' RECORD, Baltimore, Md.



"THE WELLS LIGHT"

WALLWORK & WELLS' PATENTS. (Registered Title.)

OVER 1,000 SOLD. 800 AND 2,000 CANDLE-POWER FROM OIL.

Adapted for iron and steel works, foundries, boiler shops, bridge buildings, railroads, quarries, contractors, logging, etc., etc. Used by Robert Poole & Son Co., Clifton Iron Co., Longdale Iron Co., Pula & Iron Co., Old Dominion Iron & Nail Co., the Glamorgan Co., N. & W. R. R. and C. & O. R. R. For descriptive circular address

KEEGAN & HALPIN,

44 and 46 Washington Street, NEW YORK.

Davidson Ventilating Fan Co.

FANS AND BLOWERS.

Adopted by the Thomson-Houston Motor Co., after Exhaustive Tests.

Factories: Cambridgeport, Mass.

Boston Office: 34 Oliver Street

NEW YORK.

PHILADELPHIA.

CHICAGO

T. H. BROOKS & CO.

CLEVELAND, OHIO.

Fuel Gas Producers,
Architectural Iron Work,
Sidewalk Lights,
Steam-Heating Apparatus.

Manufacturers of

WANTED MANUFACTURERS where free Fuel and Lights are an advantage to Manufacturers. Please address for full particulars.

THE PHILLIPS LAND & GAS CO., ALEXANDRIA, IND.

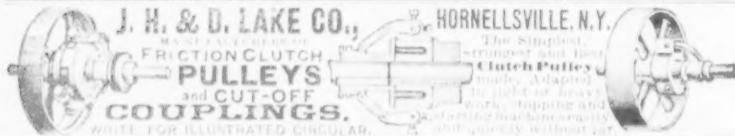
WANTED.

TO CORRESPOND with Hardware and Machinery Manufacturers who would be desirous of having agency here for the sale of their goods. Have a well established trade now, and facilities for doing large business the coming season.

S. L. MITCHEL, Manufacturers' Agent,
34 Magazine Street, New Orleans, La.

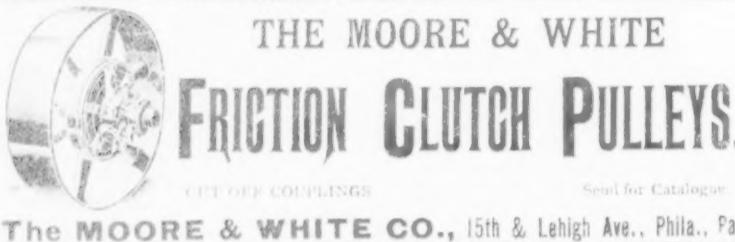
PATENTS

Opinions rendered as to novelty and patentability of inventions and validity of patents. Filled applications presented. All business relating to patents promptly attended to.



GEORGE E. LEMON,
LEMON BUILDING, WASHINGTON, D. C.
Counsellor at Law and Solicitor of
American and Foreign Patents.

ESTABLISHED 1866. Send for 6-page Pamphlet.



THE MOORE & WHITE

Friction Clutch Pulleys.

CUT-OFF COUPLINGS

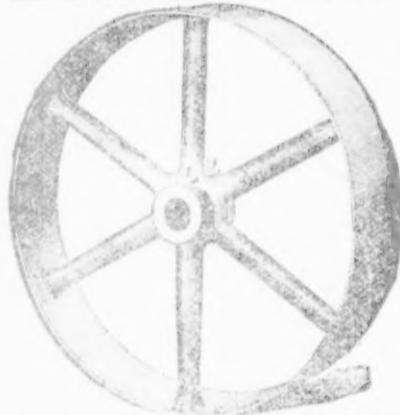
Send for Catalogue

The MOORE & WHITE CO., 15th & Lehigh Ave., Phila., Pa.

PULLEYS

We are lower than the lowest. Having special facilities for finishing Cast Pulleys, we are prepared to quote you figures that will astonish you. Don't laugh at this statement, but write us and be convinced.

THE J. B. ALLFREE MFG. CO.
12th Street and Michigan Road, Indianapolis, Ind.



Todd Pulley & Shafting Works,
EAST ST. LOUIS, ILL.
MANUFACTURERS OF
Machine Molded Pulleys,
Hangers, Boxing, Couplings,
Shafting and Gearing.

Contracts Made for Machinery
Castings of all Descriptions.
Write for Prices and Catalogues.
Refer to us before buying.



INCREASED SALES
Show that our customers appreciate the value of improvements made in
JENKINS PACKING.
It can be used again and again. Does not ROT or BURN out. Have applied Frequent U. S. Patents. Look for Trade Mark.
JENKINS BROS., New York, Philadelphia, Boston and Chicago.

SOMETHING NEW ON LUBRICATION!

Let us send you our new pamphlet on Lubrication. It is sent FREE of charge, and contains Scientific and Practical information of great interest and value.

JOS. DIXON CRUCIBLE CO., JERSEY CITY, N. J.

TAYLOR
BEST
YORKSHIRE
BAR IRON.
For Staybolts, Piton Rods, Crane Pins, Etc.
USED BY THE LEADING RAILROADS.
Sole Representatives in the United States: Nos. 11 and 13 Oliver Street, BOSTON,
No. 143 Liberty Street, NEW YORK.
B. M. JONES & CO.

R. MUSHET'S
"SPECIAL" STEELS
and "TITANIC"

BRISTOL'S PATENT STEEL BELT LACING
IS A GREAT SUCCESS.
TRY IT AND SEE. SAMPLES SENT FREE.



THE BRISTOL'S MFG. CO., BRISTOL, Conn.
READY TO APPLY. FINISHED JOINT.

TRADE-MARKS, DESIGNS, Etc.
CLASCOCK & CO.
WASHINGTON, D. C.

Send for circular. Correspondence solicited.

PATENTS

Gold Mining in the South.

has not been a record of successes. The difficulty in extracting from the low-grade sulphuretic ore has precluded profitable working. The cost has been out of proportion to the results. This is all changed now with the introduction of the Crawford Mill. Ores from over forty Southern mines have already been treated by this mill, with the surprising result of an average saving on free milling ores of nearly 35 per cent., and on refractory ore 55 per cent. In some cases the saving was double what had been secured by ordinary stamps. This makes possible the working of previously abandoned mines, and opens out a new future for mining in the South. The advantages of the Crawford Mill are summarized in the following report of a well-known mining expert:

"I would also state that in addition to the high saving powers of the mill, its simplicity of structure, ease and economy of running, fine grinding and perfect amalgamation, with minimum labor, power and water required, have been most carefully studied. The result, so far as my opinion goes, is that the claims of the company in favor of their mill are based on facts."

Full prospectus, also detailed information in answer to special inquiries cheerfully furnished.

THE MECHANICAL GOLD EXTRACTOR CO.

W. O. ROSS, Secretary

47 BROADWAY, NEW YORK CITY.

WILLIAM H. KIMBALL, Sole Agent for the Southern States, Exchange Hotel, Richmond, Va.

**AMERICAN SCREW CO.**

PROVIDENCE, R. I.

"Spur Pointed" Wood Screw.

Pat. May 16, July 19, '91; Oct. 29, '91; Aug. 19, Oct. 21, '90; April 7, '91; May 12, '91.

ITS ADVANTAGES ARE:

STRONGER THAN A CUT SCREW. FORGED NICK.
REQUIRES THE USE OF ONLY ONE BIT. INSERTED EASIER.
INCREASED HOLDING POWER. CENTRALIZED POINT.
IS COLD FORGED, AND ENTIRE SURFACE HAS A METALLIC SKIN.

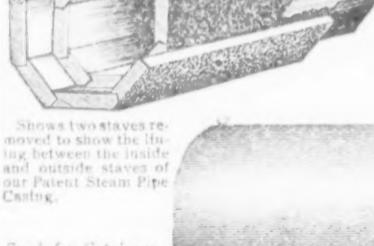
SAMPLES SENT ON APPLICATION**AMERICAN SCREW CO., Providence, R. I.**

A. WYCKOFF & SON, 112 E. CHEMUNG PL.
ELMIRA, N. Y.
MANUFACTURERS OF

PATENT STEAM PIPE CASING

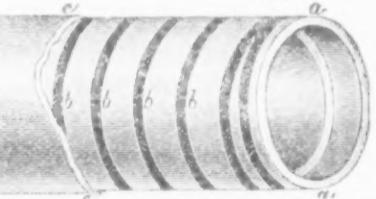
For Cold Storage Pipe and Underground
Steam Pipes.

Also manufacturers of **WOOD WATER PIPE**
For Coal and Iron Mines, Coke Works
and General Water Supply.



Shows two staves removed to show the flange between the inside and outside staves of our Patent Steam Pipe Casing.

Send for Catalogue
and Price-List.



K. H. GEARS, Proprietor.

A. COONLEY, Superintendent.

LOUISVILLE FIRE BRICK WORKS.

MANUFACTURERS OF
FIRE BRICKS of superior quality. Grade Tiles, Stove Linings, Ground Fire Clay,
Coke Oven Bricks, Crucible Linings, Blast Furnace Linings,
and Gass Furnace Blocks a Specialty.

LOUISVILLE, KY.

**MOUNT SAVAGE FIRE BRICK.
UNION MINING CO.**

Proprietors of the Celebrated Mount Savage Fire Brick. GOVERNMENT STANDARD.
Established 1812. Capacity, 10,000 Per Day. 15,000,000 Per Year.
The First Manufactory of its kind in the United States.
Home Office and Works: MOUNT SAVAGE, ALLEGANY COUNTY, MD.
Branch Offices: No. 1 Broadway, New York, N. Y.; No. 222 S. Third St., Philadelphia, Pa.; Lewis
Block, Pittsburgh, Pa.

HENRY STEVENS' SONS, Macon, Ga.

Manufacturers of

Sewer and R. R. Culvert Pipe,

Fire Brick, Milled Clay Flue Pipe and Chimney Tops,
Urns, &c. Correspondence solicited.

**ASHLAND FIRE BRICK CO., Ashland, Ky.**

Manufacturers of All Grades, Shapes and Sizes of

FIRE BRICK.

Make a Specialty of Furnace, Rolling Mill and Coke Oven Brick.

NOTICE! REDUCTION IN PRICE OF 50, 60 and 72-INCH
Boring and Turning MILL.
Write for New List August 1st, 1892.
H. BICKFORD, Lakeport, N. H.

